

American Aviation

The Independent Voice of American Aeronautics

FEBRUARY 15, 1945

No Time to Lose

IT IS quite clear that the United States has no time to lose in getting its international aviation policy established and in working order.

On the executive side the progress in conducting hearings has been exemplary,

thanks to the determination of the Civil Aeronautics Board to move ahead unless stopped by Congress.

But also on the executive side there has been embarrassing delay in the White House in signing one or more of the international agreements reached at the International Aviation Conference at Chicago. Several months have passed without more than an indication as to what the U. S. will sign. Numerous countries are awaiting the U. S. decision. Having called the conference in the first place, it behooves the U. S. not to delay matters at this point by failure to make its position known.

On the legislative side, Senator Bailey's subcommittee is again showing signs of activity. A small group of Senators seems anxious to prevent the executive departments from moving ahead until the Congress has had ample time to determine a national policy. But Senator Bailey's committee has had the problem in its lap for two years and the results to date have been negligible. Further delay may prove to be serious.

There is no overlooking the fact that a majority of Senator Bailey's aviation subcommittee has favored a single-company international airline for the United States. Without a single open hearing, and with having heard only a relatively few witnesses in secret session, a group of Senators has decided that the only solution to America's foreign air policy is a single so-called "community" airline.

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New Head of AWPC

Rex B. Beisel, general manager of the Chance Vought Division of United Aircraft Corp., has been elected president of the National Aircraft War Production Council. He also was chosen president of the East Coast Council. (Story on page 88.)

Late Bulletins

U. S., Ireland Sign

The U. S. and Ireland have signed an agreement under which the U. S. will obtain rights of air transit and non-traffic stop as well as the right of commercial entry for international traffic at Shannon airport, on routes from this country "to Ireland and countries beyond." In return, Ireland gets similar rights on routes to be decided later.

Labor Umpire Set Up

The six major southern California airframe manufacturers have made public an agreement setting up an umpire system of handling industrial relations with their employee members of the A. F. of L and C.I.O. The WLB will withdraw from control of the industry's labor relations.

Draft Worries: Through the Aircraft War Production Councils, Government manpower officials will be called on to make up their minds whether they want to draft more men from the aircraft plants, or want those plants to produce more planes.

The last of the so-called younger men, in the 26-30 age bracket, would be drained out of the plane factories under Selective Service

directive unless some settled policy is reached soon, it is felt. Main point made by the aircraft manufacturers is that it will be impossible to train replacements for these men in time for them to be of any use in meeting the intensified schedules for critical military planes. The question is whether their experience and training will be of more value in the factories, than in uniform somewhere in the armed services.

Trend of The News

NATS Expansion: Plans are being shaped rapidly for an important expansion in the Naval Air Transport Service which will give it a more vital role and an even higher standing in Navy affairs. These plans are in line with the growing concentration of the Navy on the Pacific, and will include some significant personnel designations.

CAB Gets Green Light: The U. S. Circuit Court of Appeals decision in the Essair case declared specifically that the Civil Aeronautics Board has the power to issue temporary certificates for experimental purposes. Thus the CAB gets the green light on any plans it may have for delving into the local-feeder field by issuing temporary certificates to operators on an experimental basis.

Electric Motors: Electric motors for aircraft may soon be the next item on the critical list. The War Production Board reports that some manufacturers have curtailed or delayed their orders for motors, with the result that producers of motors have been on the verge of tapering off some production lines. WPB said that no actual shortage is expected before May, but that due to recent curtailments the situation may become serious next Spring.

Two Boons and Pushers: Coming in for much attention among manufacturers of private planes, both two-place and four-place family planes, is engineering study of the possibilities of planes with double boons,

(Turn to page 6)

25c



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American Aviation

The Independent Voice of American Aeronautics

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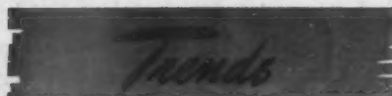
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(Continued from page 1)

pusher propellers and tricycle landing gears. The industry may expect to see a twin boom pusher model family plane unveiled before too long.

CAB Position Clear: The Civil Aeronautics Board cleared the air of any doubts about its position on international aviation and again let it be known that it is applying full power on the matter of getting out decision on these important route matters as quickly as possible. The CAB's letter to the Senate Commerce Committee let it be known in no uncertain terms that the aeronautical agency is opposed to an international air monopoly, while the speech of CAB Chairman L. Welch Pogue in New York stated emphatically that the Board was expediting international route proceedings to permit prompt inauguration of additional air services abroad when the time and conditions are appropriate. Also noteworthy in Pogue's speech was the direct slap at the theory that international air transportation spells ruin for the U. S. Merchant Marine.

Material Shortages: While the threatened aluminum shortage is reported to be under control, other material shortages—such as components and possibly steel—may soon begin to hamper the aircraft industry.

Inventory restrictions on aluminum sheet, strip and plate were tightened rigidly last fortnight by the War Production Board. Under the new rule, a user of 10,000 pounds or more a month is not permitted to accept delivery of any item of aluminum sheet, strip or plate if his inventory is or would become in excess of the quantity he would require in the succeeding 30 days. The previous limit was a 60-day supply.

SEC Transport Study: The Securities and Exchange Commission in the near future will release another in its series of statistical reports of the Survey of American Listed Corporations, including a detailed report on the aviation transportation industry. It will cover data on profits and operations for the years 1942-43. Some phases of railway transportation also will be covered. The aviation report will appear in Part V of the SEC series.

More Two-Control Planes: Signing of a contract by the Aeronca Aircraft Corp., Middletown, Ohio, with the Engineering & Research Corp., Riverdale, Md., granting Aeronca the right to build two-control planes on the same general principles as the Ercoupe originated by Engineering & Research, opens for discussion a fact known in the industry for some time that many companies producing private planes have been closely studying the Ercoupe. Other companies may seek royalty arrangements as many competitors own Ercoupes and have had them in their engineering departments for tear-down, rebuilding, study and tests. Some manufacturers foresee a double line of models, one line of two-control planes and another line of conventional planes. The new Aeronca will be fabric covered have deep auto type doors, and is expected to sell around \$1,800 or \$2,000.

State Department Post: There were reports in Washington last fortnight that the State Department may name a director of transportation and communications. This job was established during the State Department reorganization last year but was never filled while Adolf A. Berle, Jr. was Assistant Secretary of State. Under this director, when appointed, will come the aviation, shipping and telecommunications divisions. Thus, the person selected will be of more than passing interest to the aviation industry. Being mentioned for the job is Col. George Baker, former member of the Civil Aeronautics Board, who is now in the Army.

Hangars for Super Planes: As a service to airlines, at least one manufacturer of four-engine super transports for the postwar period is making available to operators plans, specifications and estimated cost of new steel and concrete hangars suitable for housing one of the large planes. New facilities for sheltering the much larger transports will become necessary at most of the terminals. Another manufacturer has a crew of engineers going from one airline to another, spending some time with each, studying maintenance problems and how they can be best handled on the new planes.

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Editorial

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The monopoly advocates include three Republicans, Owen Brewster of Maine, Arthur Vandenberg of Michigan, and Harold Burton of Ohio. The Democrats include Pat McCarran of Nevada, a sprinkling of other Senators whose agreement carry various degrees of warmth, and perhaps Senator Bailey himself who has been for, against and in the middle on various occasions.

Open hearings now promised by Senator Bailey on such bills as the McCarran proposal to create an All-American Flag Line, may alter the strange situation by which a few Senators have been able to exert considerable influence in retarding the progress of government departments. But the lack of open hearings during 1944 has been a serious handicap. Government departments were asked to hold off until the Senate had time to act. But the Senate hasn't acted.

It's time the Senate either disposed of the problem or informed the government agencies to proceed according to present law. No one disputes the Senate's prerogative in legislative matters, but delay at this time is hazardous to America's postwar world air position. If a statement of policy is to be made, it should be done as the result of extensive hearings and a real desire to obtain all the facts rather than to stand on a few secret sessions.

Staunch advocate of secrecy on foreign affairs is Senator Brewster, who points out to visitors that the British, whom he delights in baiting, are much smarter than Americans in the manner in which they proceed to handle important matters of policy. The British, he says, would make their decision in private. But the Senator forgets or evades the fact that the British Government makes foreign policy, not a small group of members of Parliament. The Senator is correct, perhaps, on the secrecy angle, but he's at the wrong end of town.

It is somewhat ironical, too, to find the Maine Senator advocating a single instrument when such a policy would be far more pleasing to the British and other foreign countries than would be a policy of regulated competition permitting a much wider use of our aeronautical resources and techniques. It is not a single company that our foreign friends fear, but a widespread use of American private initiative, enterprise and salesmanship.

But whatever action is taken by the Senate, speed is of the essence. International developments are moving much too rapidly to permit additional delay.

The State Barrier Threat

FORTY-FOUR state legislatures are meeting this year. Inevitably a great number of bills affecting aviation are being introduced and considered. The importance to all branches of aviation of this year's state legislative output can hardly be over-estimated.

A threat to America's air commerce hangs over the air transport industry in some of the state proposals, especially the bill proposed by the National Association of Railroad and Utilities Commissions. This bill would give each individual state control over the intrastate operations of interstate air carriers, a menacing restriction on national air travel that would be outrageously burdensome to industry, commerce, airline patron, and taxpayer.

State regulation of interstate commerce would put

the airlines in the same unfortunate position as the truck companies which are faced with a complex set of state barriers needlessly interfering with interstate commerce. Federal regulation is adequate and comprehensive. State regulation can only be duplication—and costly duplication at that.

The forty-eight states have a great contribution to make to the development of aviation—but the contribution must be supplementary, not obstructive or conflicting. The vast bulk of state aviation officials are well aware of this and have cooperated excellently with federal authorities in working toward uniform aviation regulation. The threat this year comes from outside the realm of aviation, from interests that do not want to see air transportation grow unhampered.

From the very beginning, aviation has been national rather than local. There are no visible boundaries in the air. With postwar transcontinental schedules of eight or nine hours, state legislative or regulatory barriers cannot exist without being harmful and costly. There isn't a single certificated airline operating today within the confines of a single state.

Every aviation interest will have to exert the utmost watchfulness this year to defeat vigorously every proposal which would erect unsound and impractical barriers to the free interstate character of air transportation. It is a subject on which there can be no compromise.

Conservative Approach

OUR HATS are off to Kellett Aircraft Corp. of Philadelphia for its modest eight-page pamphlet, "Answering Some Helicopter Questions." Without exaggeration or over-statement, and without making rash predictions, the Kellett booklet tells about the helicopter in calm and simple terms. Is it easy to fly? No, it is not a job for a novice. What will it cost? More expensive than the most costly auto. Is it safe? It hasn't yet been demonstrated whether it is any more safe or less safe than other aircraft. As for the future, the outlook is bright—with limitations. Millions of man-hours must be expended in engineering. But this fascinating new machine has many promising uses.

We think this type of approach to questions that are in the mind of the lay public is an excellent one. Over-statement, rash promises and exaggerated claims always rebound to the disadvantage of the entire industry. Kellett's factual appraisal has a note of sincerity about it that merits editorial praise.

Airport for Everybody

WE OFTEN HEAR from railroad sources that the Government is paying all the costs of airline ground facilities whereas the railroads have to build and maintain their own tracks. The proposed CAA airport program of something over a billion dollars certainly shows very clearly that the airlines are not to be the beneficiaries of federal airport construction.

A total of 48.8 per cent of the proposed amount is to go for landing fields in communities of 5,000 population and less. A total of 76 per cent will go for airfields in towns of 25,000 population and less. Very obviously it is the private flyer, or the public that will benefit from the airport program.

WAYNE W. PARRISH

GAS TURBINES AND JET PROPULSION FOR AIRCRAFT. By G. Geoffrey Smith, M.B.E. U. S. edition published by Aerosphere, Inc., New York. 124 pp.

There will be no disputing the fact that this is the most authoritative work to be published on gas turbines and jet propulsion for aircraft. Mr. Smith is managing editor of "Flight" in England and has followed very closely the development of jet. He has long been recognized as a foremost authority on aero engines.

The American edition contains an excellent introduction by T. P. Wright, CAA Administrator, and a foreword by the distinguished Sir Geoffrey de Havilland.

Engineers and students will find a wealth of material in the book. Much of the contents is quite technical, and describe the principles of jet and the developments from the earliest days of the work of Air Commodore Whittle of the R.A.F. to whom the world owes much. In view of the enormous potentials of the gas turbine and jet propulsion as applied to both commercial and military aircraft, the importance of Mr. Smith's contribution cannot be overlooked. The American edition, incidentally, is dedicated to the Institute of Aeronautical Sciences, a goodwill gesture which the American organization undoubtedly appreciates.

W. W. P.

BRITISH AIRCRAFT VOL. II. By R. A. Saville-Sneath. Photo-Reference Productions, Ltd., Amberley House, Norfolk St., Strand, London W.C. 2. Illustrated. 224 pp.

This is the second volume, corrected to May 1944, of this handy aircraft recognition series. It was published in November, 1944. It presents a comprehensive review of civil and military aircraft built in Great Britain during the last 10 years and is especially useful for reference purposes because of the historical perspective. The first volume was devoted almost entirely to monoplane landplanes. This new volume is devoted to biplane landplanes, monoplane and biplane seaplanes and amphibians, gliders, rotaplanes and helicopters, jet propulsion aircraft, airships and aero engines. As an index to British aircraft it is a welcome reference work.

THE CONTROL OF GERMANY AND JAPAN. By Harold G. Moulton and Louis Marlio. The Brookings Institution, Washington. 114 pp. \$2.

This book has received considerable attention in the national press and holds great interest for those concerned with the application of economic and other controls on Germany and Japan when the war is over. The authors conclude, quite rightly, that merely controlling such industries as aluminum and oil is not sufficient to control the aviation industries of these countries. They believe that both manufacturing of aircraft and the operation of aircraft should be strictly prohibited and that no civilian aviation be permitted in any form. Air transportation should be conducted by non-German and non-Japanese interests. Private flying should be prohibited. Aviation authorities will concur with these conclusions.

CARRIER WAR. By Lt. Oliver Jensen, USNR. Pocket Books, Inc., New York 20. 172 pp. Illustrated. \$.50.

This is the story of Task Force 58 and its Pacific sea battles. It contains one of the best collections of photographs to be found anywhere. In a foreword Artemus L. Gates, Assistant Secretary of the Navy for Air, salutes the proud story of America's new big carriers. Lt. Jensen has done an effective job. His descriptions of carrier activities in the Pacific are about as graphic as one could want. The book has a heavy paper cover.

Books

BRITAIN IN THE AIR. By Wing Commander Nigel Tangye. Illustrated. 48 pp. Hastings House, 67 West 44th St., New York.

This is a brief, concise story of aviation in Britain from the earliest days to the present. Most of the book is historical. There are eight very fine plates in full color and 25 illustrations in black and white. The book is really a collector's item and is excellently printed. Britain's air activities in the present war receive negligible attention. The author has long been a pilot and is now an officer in the R.A.F.

THE AERONAUTICAL DICTIONARY. By Thomas A. Dickinson. 484 pp. Thomas Y. Crowell Co., New York.

This book is an exceedingly useful reference work not only for those connected with some phase of the aviation industry, but also for schools, colleges and laymen who encounter words they don't understand when reading about aeronautical subjects. The author, a technical writer for Consolidated Vultee Aircraft Corp., has compiled a list of more than 6000 aeronautical terms and completely and simply defined each one. The terms are alphabetically arranged and freely cross-referenced. More than 300 drawings and photos are used to make meanings unmistakably clear. An additional wealth of material ranging from abbreviations and aeronautical symbols to screw thread and tap drill sizes and Army-Navy aircraft specifications is included in a generous appendix, making an altogether usable volume.

—S. C.

AEROPLANE FLIGHT. By H. F. Browne. 167 pp. \$2.00. Longmans, Green & Co., New York.

Written as an introduction to aerodynamics, this elementary textbook explains lift, drag, thrust, control, stability and other factors affecting the flight of a plane in simple terms that even a high school freshman should understand easily; yet at the same time gives a complete enough coverage to elementary aerodynamics to enable the reader to understand fairly detailed design features of present day aircraft. The book should prove of interest both to the layman who wants a general background on the principles of aircraft and to the elementary student of aerodynamics. For the latter a series of exercises is given at the end of each chapter.

—S. C.

AIRFRAME MATERIALS. By F. S. Stewart. 237 pp. \$2.50. McGraw-Hill Book Co., New York.

The mechanics of materials and the processes used to assemble lightweight materials for airframe construction are discussed in this elementary textbook. Heat treatment of aluminum, welding, metal working, adhesives, synthetic resins and rubbers are all described with special attention to the latest advances in the field. The author is an engineer in the Quality Division of Douglas Aircraft Co., and illustrations include many structural views of Douglas-built airplanes.

NEW METHODS FOR SHEET METAL WORK. By W. Cookson. 207 pp. The Technical Press, Ltd., London.

Author Cookson's practical working textbook for apprentices, sheet metal workers, platers and draftsmen has been revised and enlarged in this third edition. Particular emphasis is placed on the development of sheet metal patterns by mathematical formulae, particularly as applied to triangulation problems. Much of the material first appeared in article form in "Sheet Metal Industries".

S. C.

PARACHUTE TECHNICIAN. By Charles A. Zweng. 110 pp. \$3.00. Pan American Navigation Service, North Hollywood, Calif.

This is a text written by a former U. S. Air Corps instructor to prepare applicants for Government ratings as Parachute Technicians. The contents include construction, operation, inspection and maintenance of parachutes, with one complete chapter covering various methods of packing.

INTERMEDIATE AERODYNAMICS. By Robert Wesley Truitt. 227 pp. \$3.75. Pitman Publishing Corp., New York.

This is a textbook for the aeronautical engineering student. It includes facts and theories for the accurate application of aerodynamics, and mathematical explanations for practical problems relating to the airfoil, drag, stability, load factors, propellers, slots and flaps. The author is Instructor of Aeronautical Engineering at North Carolina State College.

Letters

Views With Horror

Denver.

To the Editor:

As a flight instructor with about 2500 hours of instruction behind me I view with horror, indignation and extreme squeamishness the proposals being set forth for simplification of CAR in postwar days. In postwar days, as in prewar days the biggest reason that more people will not learn to fly is the cost, not regulations.

One of the most dangerous proposals, in my opinion, is the allowance of private pilots to fly with dual controls. A private pilot is a pilot with a minimum of 35 hours, at this writing. How much would a student of meteorology, or of navigation, or even of the culinary art learn in 35 hours? And along with this proposal is the dropping of a valid flight instructor's ticket so that anyone may give instruction. I can just see some private pilots with 35 or 40 hours giving some poor dope landing instructions when he himself can only make about one good landing out of 20. This is about as good a method to keep from growing old as I know of.

Another rule, which has made sense in the past, is the minimum ceiling requirement. The proposal that all ceiling restrictions be removed again leads to possible disaster. Have the ones who propose this repeal ever tried to land a plane with a dead engine with only 1000 feet altitude?

What is the objection to having at least 1500 feet altitude at the conclusion of acrobatics? Too safe?

If it is deemed important that commercial pilots show aptitude in recovering from spins on flight tests, is it any less important for the private pilot who had much less experience? I have been advised by Army pilots that washouts come very often in the Army because of a pilot's inability to recover from spins. What is good enough for the Army pilot who has had some of the best instruction in the world, should be good enough for Joe Doaks who will be taking instruction from anybody who claims to be an instructor . . . under the new proposals.

I may be too old-fashioned in believing that regulations should be maintained for safety sake, but if aviation is to progress as we would like to see it do we must remember in making these new rules that we are dealing with students . . . students who do not realize the limitation of aircraft.

(Name Withheld by Request).

SALUTE ... to "The man with the tool kit"



"IN RECOGNITION of outstanding maintenance performance and development"... reads the coveted Aviation Maintenance Award for 1944 just presented to United Air Lines.

To whom, really, should this recognition of outstanding wartime efficiency be directed? To the manufacturers? ... They turned out the finest kind of planes. To management? ... It is fulfilling its functions. However, United Air Lines wishes to pass this recognition on to an

important and often unsung contributor to this high standard of efficiency—"The man with the tool kit."

He represents a great team—hundreds of finished technicians... mechanics... inspectors... ground crews—all contributing a vital part to the maintenance efficiency reflected in United's outstanding wartime operations.

Yes—a maintenance record such as this results from a combination of services... of teamwork. Because of this closely knit organization, United is meeting unprecedented traffic demands—has set new records for miles

flown and passengers, mail and express carried.

United Mainliners are now flying 100,000 miles daily serving the leading cities from coast to coast and up and down the Pacific Coast... doing it with efficiency meriting the Aviation Maintenance Award for 1944.



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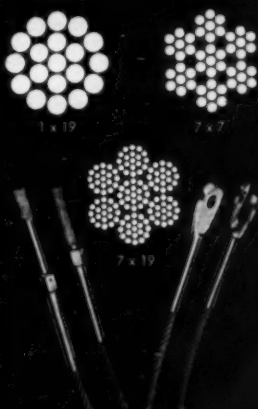
All Macwhyte aircraft products are made to conform to A-N specifications... including:

"Safe-Lock" Terminals
... in eye end, turnbuckle end, stud end and fork end.

Aircraft Slings
... custom-built for your work. Both standard wire rope and braided slings.

Tie-Rods
... for internal and external bracing. Streamline, square, round.

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Manufacturers of MACWHYTE
"Hi-Fatigue" Aircraft Cables—"Safe-
Lock" Cable Terminals—Aircraft
Tie-Rods—Braided Wire Rope Slings
—and Wire Rope for all requirements.

New Booklets

"An Engineering Interpretation of the Economic and Financial Aspects of American Industry," prepared by George S. Armstrong & Co., 52 Wall St., New York, N. Y. (Vol. VI. The Electronic Industry). Sixth in a series of studies dealing with a product or commodity used in the war effort.

"Excess Profits Tax Relief: The Cyclical Provisions," by Joseph L. Snider, Harvard University, Graduate School of Business Administration, Division of Research, Soldiers Field, Boston 63, Mass. A study directed toward clarification of the cyclical provisions of the excess profits tax relief section 722 of the Internal Revenue Code.

The Civil Aeronautics Administration has published a new booklet entitled "The CAA," which tells the story of the agency today and indicates its role in "the world of aviation of tomorrow." Copies are available from the CAA division of information and statistics, Commerce Building, Washington, D. C.

"A Story of High Altitude," is a new booklet released by Vose Memorial Laboratory of Sperry Gyroscope Co., Great Neck, L. I., N. Y. It contains a history of high altitude research, high altitude flight conditions, medical difficulties encountered and the organization of a high altitude laboratory.

Shell Oil Co., 50 W. 50th St., New York 20, has just published the eighth edition of "Panorama of Lubrication," designed to lay a basis for the solution of complex lubrication problems which have developed in the wake of aircraft engine advancements. The illustrated booklet outlines some specific problems that aircraft engine improvements have posed for the oil industry, in the belief that a thorough study of the causes and effects is the best basis for their solution.

A Manual of Aircraft Materials, a book of 261 pages, has been published by the American Steel & Wire Co. of Cleveland, Chicago and New York. It is not a catalog of company materials, but is a reference and instructive manual of materials used in aircraft, well indexed under the general headings: Evolution of aircraft, control cables, cold rolled strip steel, stainless steel, wire, cold finished steel bars, springs, and general engineering tables.

A new booklet—The Scott Chartered Dealer—now being distributed by Scott Aviation Corp., Lancaster, N. Y., explains that company's outline for intelligent planning of the private airport operator's program and presents its merchandising plans built around independent dealers and distributors.

An elaborate booklet entitled, "Airport Planning," has been prepared by Giffels & Vallet, Inc., Detroit, which covers many of the developments that may be expected in the post-war field of aviation. The booklet, done in colors, contains many charts and graphs which deal with the experience in the growth of air transportation as to carriage of passengers, mail and express with appropriate comparisons with other transportation services.

The CAB's Safety Bureau has issued a new bulletin (No. 165.45) entitled "Do You Study Weather Reports or Just Read Them?" It was prepared by Earl L. Smith, air safety investigator, and contains hints and tips for pilots on interpreting weather reports. Copies are available from the CAB press room.

"In considering suitable memorials to the men and women who have served in this war, nothing could be more fitting, more practical and serviceable to the community than the construction and improvement of airports and airport buildings," says the booklet "Memorial Airports," just published by the Michigan Board of Aeronautics. The Board urges individual citizens to take part in carrying the responsibility for providing increased local airport facilities in Michigan.

Twenty-five Years Ago

Lieuts. Ferrari and Masiero, piloting S. V. A. machines, started the Rome-Tokio flight. The route planned totals 10,379 miles. (Feb. 14, 1920)

M. Casale, in a Spad Herbemont biplane, with two passengers, attained a reported height of 7,300 meters (24,000 ft.). (Feb. 17, 1920)

The American Embassy has organized a weekly aerial service from Paris to Warsaw, via Coblenz and Berlin. (Feb. 19, 1920)

A Congressional Committee visited the air station at Hampton Roads. Representatives Britten, Hicks, Oliver and Venable made a short flight in an airship F-1. (Feb. 21, 1920)

A fleet of five HS-2 and five H-16 flying boats from the Naval Air Station, Pensacola, Fla., participated in the Mardi Gras festival at New Orleans. Twelve N-9s took part in a fete at Mobile. (Feb. 21, 1920)

Fifteen Years Ago

The Municipal Airport at Pontiac, Mich., received the first A-1-A rating from the Department of Commerce. (Feb. 11, 1930)

Lieuts. W. W. White and Clement McMullen flew from New York to Buenos Aires in 52 hours, 15 minutes flying time, establishing an unofficial record. (Lockheed Vega, Pratt & Whitney Wasp motored) (Feb. 14, 1930)

The second annual International Aircraft Exposition was held at St. Louis, Mo. (Feb. 15-23, 1930)

D. S. Zimmerly established an American altitude record for light airplanes of the third category of 24,074 ft., at St. Louis, Mo. (Nicholas Beasley Barling, Lambert E 266 motored) (Feb. 16, 1930)

The first National Conference on Aeronautical Education was held at St. Louis, Mo. (Feb. 17-19, 1930)

L. F. Shoenhair established a speed record for 100 kilometers, with a payload of 500 kilograms, of 185.49 mph. at Jacksonville, Fla. (Lockheed Vega, Pratt & Whitney Wasp motored) (Feb. 18, 1930)

Air mail through service was inaugurated by the New York, Rio and Buenos Aires Line, Inc., between Santiago, Chile, and Miami, Fla. (Feb. 18, 1930)

Correction

The booklet by Pan American Airways, "Ten Thousand Times Around the World", was erroneously called "One Thousand Times Around the World" in the review on this page January 15. Even the correct title is getting to be a little behind the times, since we are now advised that Pan American clippers have flown more than 317,800,000 miles of overseas trips, a distance greater than 12,700 times around the earth at the equator.

What's a Sperry TR doing up here?



© Photos from a movie of actual operations at an AAF bomber base in England.



THAT FELLOW in the uniform up on the bomber is one of the many Sperry Service Engineers on duty overseas—Technical Representatives with the Armed Forces.

These men know their gyroscopes! They help keep Sperry equipment, gyroscopic and otherwise, at the peak of condition . . . often make check flights in the lead plane before bombing missions . . . perform hundreds of vital tasks in support of combat units.

Here at home scores of other Sperry Service Engineers work at top speed to help keep the equipment flying—and their tasks are no less vital. *In all, some 135 Sperry Service Engineers devote their full time to aeronautics.*

Sperry has always taken pride in its complete *follow-through* service for Sperry devices. The Service Engineers who see that no Sperry product ever becomes an "orphan" are highly trained technical men. *After* the war, they'll be busy following through on the instruments which we will produce for peacetime aviation . . . busy in all corners of the world.

THEY WILL BE responsible for proper installation of Sperry equipment . . . for instructing in proper operation and maintenance . . . for servicing, should trouble occur. And for keeping our Research Laboratories informed about the performance of equipment in the field, thus helping to make Sperry devices ever finer.

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Battle Turning Point

Courage is not enough unless it is backed by firepower... unless the right munitions in the right quantity reach the right place at the right time. This is a war of supply as much as it is a war of combat. At Bastogne, as in a hundred other moments in this war when the issue has been in doubt, the tide of battle was turned through the speedy delivery by air transport to our fighting men of shells and weapons which an hour before were hundreds of miles away. Douglas workers, builders of planes for the world's airlines yesterday and tomorrow, are working at full speed today building war transport planes which are turning the tides of battles.

Donald W. Douglas



First AROUND THE WORLD

Douglas

GREATEST NAME IN AVIATION



First THE WORLD OVER

DOUGLAS EQUIPPED AIRLINES: All American Aviation — American Airlines — American Export Airlines — Braniff Airways — Chicago & Southern Air Lines — Colonial Airlines — Continental Air Lines — Delta Air Corporation — Eastern Air Lines — Hawaiian Airlines — Inland Air Lines — Mid-Continent Airlines — National Airlines — Northeast Airlines — Northwest Airlines — Pan American Airways — Pennsylvania-Central Airlines — Transcontinental & Western Air — United Air Lines — Western Air Lines — A. S. Aerotransport (Sweden) — Aer Lingus (Ireland) — Aerovias Braniff, S. A. (Mexico) — Aerovias de Guatemala, S. A. — American Airlines of Mexico — Australian National Airways — Avianca (Colombia) — BOAC (British Overseas Airways) — Canadian Pacific Airlines — China National Airways — Cia. Mexicana de Aviación — Cia. Nacional Cubana de Aviación, S. A. — Cruzeiro do Sul (Brazil) — Indian National Airways — K.L.M. (Royal Dutch Airlines) — K.N.I.L.M. (Dutch East Indies) — IBERIA (Spain) — Panair do Brasil — Panagra (Pan American-Grace Airways) — PLUNA (Uruguay) — SABENA (Belgian Congo) — Swissair (Switzerland) — TACA (Central America) — TATA Airlines (India) — UMCA (Central America).

Crozier Proposes Three Pacific Routes

Heavy Traffic Over Modified CAB Pattern Foreseen; Fares Held Not Decisive Factor

By KENNETH E. ALLEN

PROSPECTS OF LARGE and developing air traffic between the United States and South Pacific countries and China are excellent and will be greatly stimulated by new economic, social and political ties growing out of the war. F. H. Crozier, chief of the Civil Aeronautics Board's Research and Analysis Division reported last fortnight in study of overseas air service patterns dealing with the transpacific areas.

Crozier suggested three transpacific routes to serve Hawaii, the Asian and Australasian areas. These represent modifications of the transpacific routes originally proposed by the CAB in its announcement of last June 14.

In the transpacific region, as in the transcaribbean and transatlantic regions, Crozier assumed that first class mail and combined historic air travel and first and cabin class sea travel will provide a principal market for future air traffic.

On this basis, he estimated that average daily outbound mail would be 3251 pounds and 138 passengers.

As in other regions covered by previous Crozier reports on overseas travel, this one indicated that future air travel in the transpacific region will be contributed principally by U. S. residents.

With reference to the effect of comparative costs of steamship and air travel, the report states that the transpacific air market does not depend on fare levels alone.

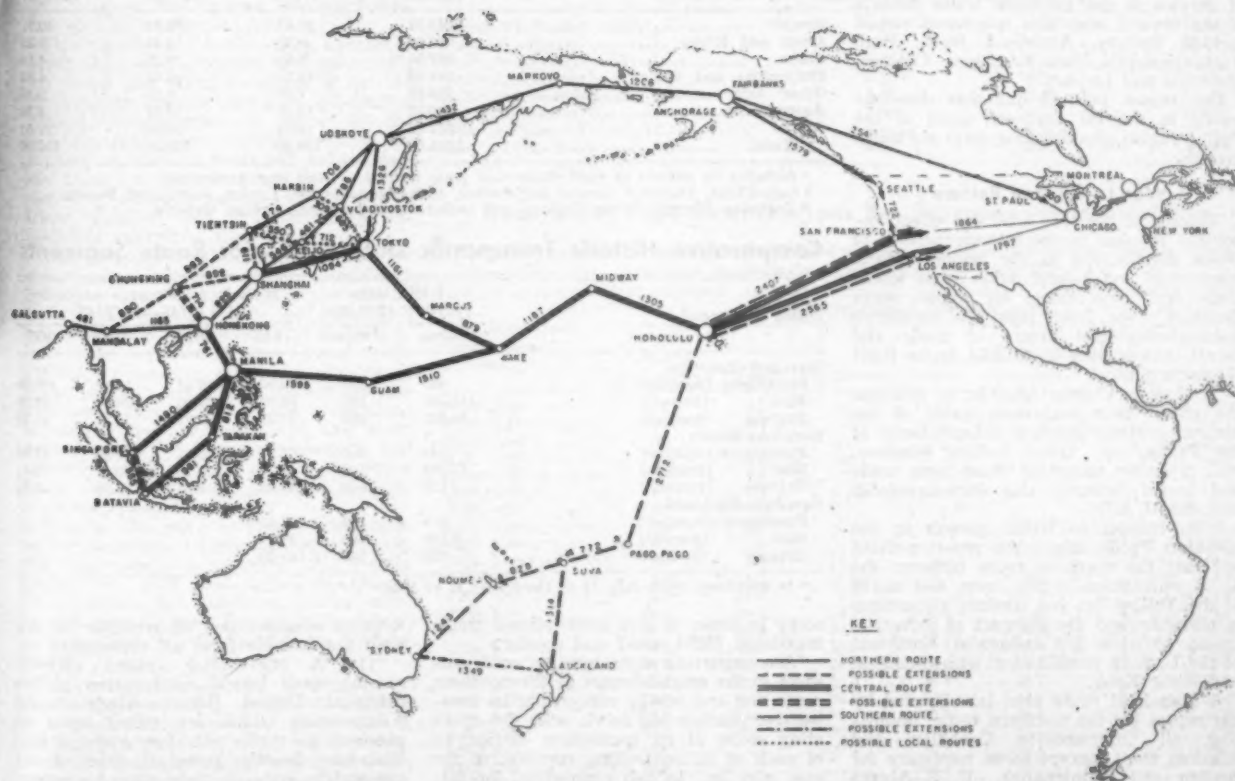
This is attested by the fact that "practically all of the historic air travel moved at higher than luxury steamship fares for corresponding journeys."

"Where reasonably adequate service was available and war influence appeared to exert the least relative effect, 1941 air travel approximated that portion of the 1937 sea travel estimated to have moved at rates of approximately seven cents per great-circle mile. The portion of the total historic sea travel market estimated to have moved at rates of seven cents or more per great circle mile represented a very small fraction of the total volume of sea travel.

"With prewar transpacific air fares at levels of approximately eight and a half cents per great-circle mile, it is obvious that the prewar air travelers in that region were willing to pay a differential above sea fare for the saving of travel-time. In all probability further penetration of the historic sea travel market could be expected even at prewar air fare levels."

In a breakdown of the three routes, the

Suggested Transpacific Air Route Pattern



report suggested two segments for the northern route, one segment extending to Seattle and the other to Minneapolis-St. Paul or possibly Chicago. The segments would join at Fairbanks, then swing westward to Marovo (Russia), and then south to Udaokoye. At this point a three-way break was suggested with alternate routings to (1) Harbin and Tientsin; (2) Vladivostok and Shanghai, and (3) to Tokyo.

Routes Fan Out

The central route would jump from San Francisco and Los Angeles to Honolulu, thence westward to Wake. There a two-way split was proposed with a northern segment going to Tokyo and a southern leg to Manila, via Guam. At Manila a three-way split was proposed with one segment going to Hongkong, another to Singapore and the third to Batavia.

The southern route would have the same U. S. terminals, and would run to Honolulu, then swing south to Pago Pago and Suva. A two-way split was proposed at the latter point, one segment going to Noumea and Sydney, and the other to Auckland, New Zealand.

The southern route was seen as a potential link over which might flow an important volume of travel between Australasia and the British Isles.

"Whether this possibility becomes a future reality would appear to depend in no small degree upon whether this link can be incorporated in a closely integrated operation between Australasia and the British Isles designed with a view to serving traffic between these areas with maximum comfort and speed.

"The air route which would appear to combine most effectively the advantages of shortness with reasonable directness of service to the principal traffic centers of the several countries concerned would include Sydney, Auckland, Suva, Pago Pago, Honolulu, San Francisco, Chicago, Montreal and London."

The report pointed out that developments in the far northern parts of the Pacific region promise long-term air traffic growth.

War to Change Pattern

"Results of the war will also effect important changes in the historic pattern of travel distribution in the region. Many continental and insular Asian areas whose trade has been taken by Japan seem destined to be freed from that country's domination. The future of trade and travel between the U. S. and Japan itself is obscure."

"It does not seem feasible to estimate the effect upon long-term traffic of the assured postwar political independence of the Philippines. Other factors, however, will probably stimulate short-term trade and travel between this commonwealth and the U. S."

With respect to traffic growth in the northern Pacific areas, the report pointed out that the northern route between the U. S. and Asian region west and north of the Yellow Sea has distinct advantages in distance, and the prospect of industrial tie-up between the industrial Northeast of the U. S. in combination with Shanghai and Hong Kong.

A long-haul route plan is suggested by the report for the northern route, omitting all intermediate Canadian and Alaskan stops, except those necessary for fueling and maintenance. U. S.-Alaska traffic would be left to services of less

Comparative Air Route Distances*

Asian destinations	San Francisco		Seattle		Chicago	
	Northern route	Central route	Northern route	Central route	Northern route	Central route
Udaokoye, Siberia	4,941	8,265	4,219	8,967	5,531	10,129
Harbin, Manchuria	5,647	7,913 ^b	4,925	8,635 ^b	6,237	9,779 ^b
Keljo, Korea	6,188	7,651 ^b	5,466	7,737 ^b	6,778	9,519 ^b
Tokyo	6,267	6,939	5,545	7,661	6,857	8,961
Shanghai	6,734	8,033	6,012	8,755	7,324	9,297
Hong Kong	7,559	8,765	6,837	9,487	8,149	10,629
Manila	8,320	8,004	7,598	8,726	8,910	9,960
Calcutta	9,205	10,411	8,483	11,133	9,795	12,272

* Distances computed by the Research and Analysis Division of the C. A. B.

^b Via local connections.

Traffic Flow Prospectus—Suggested Sydney-London Route (Daily Traffic)

Description	Sydney-Auckland	Auckland-Honolulu	Honolulu-San Francisco	San Francisco-Chicago	Chicago-Montreal	Montreal-London
Segment distance (miles)	1,349	4,798	2,407	1,864	737	2,283
Cumulative distance (miles) .....	.....	6,147	8,554	10,418	11,155	14,438
Joint overocean travel						
Australasia-United States	9	12	12	6	.....	.....
Australasia-Canada	4	6	6	6	6	.....
United States-Canada .....	.....	.....	.....	.....	5	.....
United States-British Isles .....	.....	.....	.....	12	52	82
United States overocean travel .....	.....	.....	10	10	.....	.....
British Commonwealth overocean travel						
Australia-New Zealand	7	.....	.....	.....	.....	.....
Australasia-British Isles	12	14	14	14	14	14
Canada-British Isles .....	.....	.....	.....	.....	.....	.....
Total	32	32	43	48	77	66 ⁺

⁺ Data not available although it is believed that this traffic was very substantial.

Average Daily Outbound First and Cabin Class, Air Passengers, First Class, and Air Mail for 1937

United States to:	Mail ^a		Passengers	
	Pounds	Percent	Number	Percent
Hawaii	1,343.51	38.25	56.22	40.71
Japan and Korea	263.90	8.12	4.44	3.22
China	282.34	8.68	5.73	4.18
Philippines and Guam	349.99	10.76	6.69	4.81
Other Asia ^b	239.80	7.38	0.75	0.50
Australasia ^c	340.02	10.46	12.37	8.96
Alaska	531.52	16.35	51.88	37.37
Total	3,251.08	100.00	138.10	100.00

^a Includes 84 pounds of mail dispatched from Hawaii to Asia and Australasia.

^b Indo-China, Thailand, Straits Settlements, Netherlands Indies, Ceylon, India and Burma.

^c Includes Australia, New Zealand and islands of French and British Oceania.

Comparative Historic Transpacific Data by Major Route Segments

Traffic westbound	Traffic data		Historic traffic as a percent of 1/1/41—12/7/41			
	1/1/41	12/7/41	1940	1939	1938	1937
	Volume	Percent				
Mainland-Honolulu						
Passengers (number)	983	100	72.02	42.42	18.92	29.30
Mail (pounds)	143,168	100	50.09	24.53	20.84	18.30
Express (pounds)	86,397	100	47.27	26.91	13.80	12.20
Honolulu-Manila						
Passengers (number)	743	100	56.66	33.92	17.09	27.90
Mail (pounds)	12,976	100	46.64	23.26	20.67	15.41
Express (pounds)	2,738	100	95.90	8.98	8.36	8.04
Honolulu-Auckland						
Passengers (number)	319	100	26.33 ^a	.....	.....	.....
Mail (pounds)	3,526	100	21.92 ^a	.....	.....	.....
Express (pounds)	270	100	109.63 ^a	.....	.....	.....

^a In operation from July 12 to December 31 of 1940.

scope in order to give international traffic maximum flight speed and comfort.

"An important consideration with respect to the establishment of the northern route and one vitally concerning its competitive position has to do with the operating scope of its controlling carrier, or of each of its controlling carriers, as the case may be. In this connection, the following possible patterns are defined

without consideration of whether or not they are feasible from all viewpoints:

"(1) A one-carrier system directly serving some logical combination of the principal United States, Alaskan and Asian areas which are relied upon to generate its traffic, viz: Los Angeles, San Francisco, Seattle; principal cities of the industrial northeast; Fairbanks-Anchorage area; principal cities of Asia.

"(2) A one-carrier system connecting both the Seattle and Twin Cities gateways with the Fairbanks-Anchorage area and extending thence to principal Asian cities.

"(3) A one-carrier system connecting the Twin Cities (Minneapolis-St. Paul) gateway with the Fairbanks-Anchorage area and principal Asian cities, with a second carrier connecting Seattle and the Alaskan junctions.

"(4) A one-carrier system connecting the Seattle gateway with the Fairbanks-Anchorage area and principal Asian cities, with a second carrier connecting Twin Cities and the Alaskan junction, the latter possibly extending to other Alaskan areas.

"(5) Some combination of direct service to interior United States areas with carrier patterns (2), (3) or (4).

"Any attempt to measure the service requirements of a route against its probable traffic would be unrealistic if it failed to take into consideration the traffic and operating advantages of single-carrier over multiple-carrier service between any given pair of stations. The central Pacific route affords single-carrier service between the very important traffic centers of California and several of the most important Asian centers on the projected northern route. It affords two carrier service between these latter centers and nearly all other U. S. centers of first importance.

"It seems reasonable to conclude that if the northern route is to attain the par previously suggested it must offer service reasonably comparable with that provided by the central Pacific route. . . . It appears obvious that the traffic prospects of the northern Pacific air routes will depend largely upon the degree to which it is designed to afford continuity and integration of service between important centers of traffic interchanged."

The par figure mentioned by Crozier is based upon such elements as future traffic for which the present outlook is not too encouraging; resolve operating and service pattern uncertainties in favor of the northern route; contemplate complete diversion of historic first and cabin class sea travel to the air, and then assume that the northern route will share this travel equally with the previously established central route.

With respect to the central route, the report points out that a daily round trip by a four-motored plane of current model "would adequately meet the immediate postwar traffic requirements of the Honolulu-Wake segment of the central route pattern. Schedules might be divided at Wake to serve the Manila branch and the proposed Tokyo branch in the proportions of their respective traffic. If this were done it might be found necessary to add schedules at Manila to service the Hong Kong, Singapore and proposed Batavia branches adequately."

Despite the very attractive long-term traffic prospects of the southern route, the report said, it is estimated that a daily round trip with four-engine equipment "will provide the maximum service warranted by traffic over the Australia-Honolulu segment in the immediate postwar period.

Between California and Honolulu, the report estimated that maximum services of a single daily roundtrip over each of the San Francisco-Honolulu and Los Angeles-Honolulu branches would be adequate to traffic requirements during the immediate postwar period.

Without Comment!

State Representative Guy D. Hawley (R.) of Greenville, Ohio, has introduced a bill in the Ohio legislature which would prohibit the transportation of dogs on passenger planes, except seeing-eye dogs. The penalty is \$500 on either the operator or the owner of the plane.

U.S., Iceland Conclude Reciprocal Air Pact

A reciprocal air transport agreement under which the United States and Iceland extend to each other full commercial rights was signed at Reykjavik Jan. 27. Iceland is an important stepping stone on air routes to Europe.

Under the agreement, U. S. airlines obtain rights of transit and technical stop and the right to pick up and discharge international traffic at Iceland's Keflavik airport on a route from the U. S. "to Iceland and points beyond."

In return, airlines of Iceland obtain similar rights on a route from Iceland to New York or Chicago.



CAB Chairman Honored—The

Award of Merit of the New York Board of Trade's Aviation Section recently was presented to L. Welch Pogue (left) chairman of the Civil Aeronautics Board, at a ceremony in Hotel Commodore, New York. Mayor La Guardia (right) is shown making the presentation as John F. Budd, chairman of the Aviation Section, looks on.

Comparative Flow of All Air Travelers in 1941 Between United States and Alaska, Hawaii, Australasia and Asia, By Major Segments

Major segments	Total air travelers in both directions—daily average	Air travelers to and from United States—daily average	Percent of total
Seattle-Fairbanks	4.50	4.38	66.46
Fairbanks-Nome	1.95	0.61	31.28
Fairbanks-Bethel	0.50	0.16	27.12
California-Honolulu	6.15	6.15	100.00
Honolulu-Auckland	1.90	1.23	61.81
Honolulu-Manila	3.00	1.71	53.60
Manila-Singapore	1.64	0.38	23.24
Manila-Hong Kong	4.01	0.36	8.96

Cumulative Fare Classifications Per Passenger-Mile Estimates

(Sea passenger traffic moving in both directions by steamship between Alaska, Hawaii, Asia and Australasia during calendar year 1938)

Cumulative fare classification (cents)	Cumulative percentages						
	Hawaii, Asia and Australasia	Hawaii	Philippines	Japan	China and other Asia	Australia and New Zealand	Alaska
12.50-12.99	0.1	0.1	...	...	...	...	...
12.00-12.49	0.1	0.1	...	...	...	...	...
11.50-11.99	0.1	0.3	...	...	...	...	...
11.00-11.49	0.1	0.3	...	...	...	...	...
10.50-10.99	0.1	0.3	...	...	...	...	...
10.00-10.49	0.1	0.3	...	...	...	...	...
9.50-9.99	0.2	0.5	...	...	...	...	...
9.00-9.49	0.8	1.9	...	...	...	...	...
8.50-8.99	0.8	2.0	...	...	...	...	0.1
8.00-8.49	2.4	5.3	1.7	0.4	...	...	0.2
7.50-7.99	5.5	11.5	3.0	0.7	...	...	0.6
7.00-7.49	8.1	16.5	6.6	1.1	1.2	...	1.9
6.50-6.99	22.8	26.7	17.1	23.5	23.1	0.2	3.1
6.00-6.49	30.4	36.2	22.5	28.6	28.3	14.5	9.0
5.50-5.99	37.6	48.2	32.1	28.8	28.5	32.8	15.5
5.00-5.49	48.2	57.0	33.3	38.7	38.6	70.0	46.8
4.50-4.99	50.1	61.2	33.3	38.9	38.7	70.6	90.3
4.00-4.49	58.8	71.3	33.3	49.1	48.7	70.6	96.0
3.50-3.99	76.8	90.2	75.4	61.5	61.6	92.1	98.3
3.00-3.49	87.1	100.0	95.1	71.1	71.4	100.0	98.6
2.50-2.99	88.9	...	100.0	74.2	74.4	...	100.0
2.00-2.49	88.9	...	...	74.2	74.4	...	...
1.50-1.99	100.0	...	...	100.0	100.0	...	...

Four Government Agencies Oppose Chosen Instrument

**CAB, Army, Navy,
Commerce Dept.
Hit McCarran Bill**

STRONG OPPOSITION to any deviation from a United States international aviation policy of limited competition has been expressed in letters from four Government agencies to Sen. Josiah Bailey (D., N. C.) as chairman of the Senate Commerce Committee in answer to the Senator's request for opinions on the McCarran Bill which would create an All American Flag Line.

The letters, revealed during the fortnight, were from the Civil Aeronautics Board, signed by Oswald Ryan, acting chairman; Department of Commerce, signed by William A. M. Burden, acting Secretary; War Department, signed by Secretary of War Henry L. Stimson; and Navy Department, signed by Secretary of the Navy James Forrestal.

That part of the CAB letter dealing specifically with the subject of monopoly follows:

"If there is to be any change in the present law as to the nature of the carrier or carriers through which the United States is to operate its international air transport services, it should be done promptly. A large number of applications for new international air routes are now pending before the Board and whether the U. S. is represented in the field by one company or several, a substantial expansion of our international air services will be desirable in the immediate future. A large and complicated program must be worked out before our future international air transport system can be placed in operation. It is important that the working out of the program proceed as rapidly as possible.

"The existing national policy, as set out in the CAB Act, is one of regulated limited competition. The present law undertakes to limit competition by the application of the standard of public convenience and necessity in determining the extent to which competition should be permitted in each case; and the establishing of competition is controlled through the statutory provision requiring a certificate of public convenience and necessity as a prerequisite to the right to engage in air transportation and the provisions requiring administrative approval of mergers, consolidations, acquisitions and other intercorporate relationships. By this policy, Congress has deliberately sought to avoid the economic anarchy of unrestrained competition on the one hand and the evil effects of a protected monopoly on the other. This policy is in accord with the American economic tradition in the field of private enterprise which has always been unfriendly to monopolistic control of business.

"The basic question before us now is whether this national policy of regulated competition shall be abandoned in the future in the international air transporta-

tion field for a declared policy of regulated monopoly.

"We believe that the public interest requires the operation of more than one U. S. international air carrier. A monopoly in U. S. international air transportation would place upon a small group of private individuals responsibility for the handling of many matters having a tremendous national public importance.

"The vast extent of our probable future operations, their economic and political significance in the affairs of the nation, would place a monopoly, assured by national policy of remaining as such, in a position of power which might enable it to defeat public policies unacceptable to management. The presence of more than one U. S. company in international operations should provide a broader and more intensive development of equipment, facilities, and services in that field than would be possible through one company.

"The present law leaves open the question of establishing competitive services to be decided in each case as it arises. It is our view that there should be more than one U. S. international air carrier, and that substantial advantages will arise from the operations of more than one company. We do not suggest that it will be either desirable or feasible to have a large number of U. S. companies in the field. It seems likely, however, that the national interests will best be served by authorizing a limited number of U. S. air carriers to operate international air transport services.

"A decision to have more than one U. S. carrier in the international field does not necessarily mean that a large number of directly competitive routes should be established. Competitive services should be established only in exceptional cases. However the inherent characteristics of air transportation, especially its freedom from the necessity of large fixed property investment, the relatively small capital needed in proportion to the volume of service rendered, and its relatively small fixed costs as compared with its variable costs favor a competitive economy in this industry. We believe that the international air services which the U. S. will be justified in inaugurating will be sufficiently extensive to support a competitive system of U. S. air carriers.

"No effective substitute for healthy

New \$40,000,000 Order Placed for Privateers

A new contract for 40 million dollars worth of Privateer PB4Y-2 Navy bombers has been awarded to Consolidated Vultee Aircraft Corp.

Present contracts for these long range, four-engine planes will not be completed until late this year, and the new contract will carry production into 1946, according to James L. Kelley, San Diego division manager.

The announcement of the new contract came on the heels of the revelation that Privateer PB4Y-2s have been in production at the San Diego division for a year. The heavily armed search planes were designed to patrol vast stretches of the Pacific in scouting enemy shipping and fleet activity.

competition as a stimulus to development can be found in monopoly. The stimulus to an imaginative management that results from the competitive efforts of business rivals to secure patronage and trade can not be matched as a motivating force for public welfare even by the private profit incentive; for the latter might be gratified by moderate traffic at high rates, while public welfare requires a large volume at lower fares and charges. The validity of this is borne out by the experience of domestic air transportation in the U. S., where competition among the air carriers has brought improved operating methods, better service and the many technical developments which resulted in improved operating equipment and increased safety.

"We are convinced that the existing statutory policy providing for competition, where required by the public interest, is a sound one and should be continued in effect. We recognize that competition from foreign air carrier services will undoubtedly develop on a number of important routes. The probable existence of such foreign competition, however, is not an adequate reason for abandoning the present statutory policy.

"Our recommendation simply means that the U. S. will preserve the opportunity to secure the benefits of operation by more than one carrier or of competition in those cases where competition is sound. Obviously, in reaching specific conclusions in particular cases the amount and character of foreign competition will have to be taken into consideration. It will undoubtedly be true that competitive U. S. services will not be justified on a number of routes. The important point is that we should not, by fixing now upon a 'chosen instrument' policy, close the door to the benefits to be derived from the existence of more than one U. S. carrier or from competitive U. S. services.

"For these reasons we recommend against the enactment of Title V of the bill."

The text of the Department of Commerce letter:

"Reference is made to your letter of June 2, 1944, requesting a report from this Department on S. 1950, a bill 'To create the All American Flag Line, Incorporated,

Aviation Calendar

Feb. 14-16—AOGA, American Manufacturers Assn., semi-annual conference (Personnel), Palmer House, Chicago.

Feb. 16—National Aeronautics Assn., meeting Board of Directors, Chicago.

Apr. 4-6—Society of Automotive Engineers, National Aeronautic meeting, Hotel New Yorker, N. Y.

Apr. 16—World Air Transport Operators meeting, Havana.

May 6-9—International Aviation Fraternity, first annual convention, Miami Beach.

May 20-27—Pan American Aircraft Exposition, Dallas, Texas.

and to assure the United States world leadership in the field of air transportation.

"S. 1950 proposes to create an 'All American Flag Line' which would in effect be the single 'chosen instrument' for the United States in the field of foreign air transportation.

"Our present national policy as established in the Civil Aeronautics Act of 1938 is one of limited competition regulated by the Civil Aeronautics Board. It seems desirable in the public interest to continue that policy rather than adopt a system of single company operation, and the Department, therefore, does not favor the above bill.

"Not only would the creation of a United States monopoly in this field, even though owned jointly by a number of individual airlines, be inconsistent with our economic tradition in the field of private enterprise, but there is every indication that an organization of that type would not produce the maximum possible development of our international air transport.

"Air transport is still a new and rapidly developing art. Thanks to the basic advance made possible by wartime research, technical development in aircraft design and in aircraft operation should, if intensively pressed, be extremely rapid over the next two decades. The field of international air transport, which is still in a relatively early stage of development, offers unusual opportunities for management enterprise in the development of new aircraft types, improved operating methods and new methods of sales and service. United States airline operations abroad must be aggressive and progressive in all these phases of operation if we are to maintain a leading position as compared to other nations.

"Past experience indicates that competition is by far the most effective spur to technical advance, improvement in service and lower operating costs. Foreign competition has not proved an effective stimulus because of the inevitable tendency in all countries to underrate the technical achievement of other nations.

"Neither will foreign competition assure the simultaneous development of new types of equipment by a number of American manufacturers, for some of the major foreign powers are barred either by policy or law from purchasing equipment of other than their own manufacturers. The record of our domestic airlines under regulated competition in improving aircraft and operating methods and introducing innovations in passenger service is far in advance of that of foreign monopolies even after making full allowance for the more favorable conditions under which our domestic carriers operate. In fact, the achievements of foreign airline monopolies, whether government-owned or privately-owned and closely controlled by Government, are not such as to encourage this country to emulate that form of organization.

"The international air transport operations of the United States will be very great in extent during the next decade and there will be room for a limited number of companies, each of sufficient size and financial strength to meet effectively foreign competition in the field in which it is operating. It is not necessary that American lines compete directly with each other on parallel routes unless the traffic warrants. The number of companies per-

mitted to enter the field and the routes which they will operate should be determined by the Civil Aeronautics Board in the same manner that it determines the question in the domestic field.

"The important thing is that more than one group of American managerial and technical brains be permitted to operate independently in the international air transport field. This can best be accomplished under our existing policy of regulated competition as laid down in the Civil Aeronautics Act of 1938.

"The Bureau of the Budget has advised that there is no objection to the presentation of this report to your Committee."

Secretary of War Stimson wrote as follows:

"A revolutionary feature of the bill appears in Title V, which provides for a single corporation known as the 'All-American Flag Line, Incorporated,' stock of which is to be owned by air carriers holding certificates issued by the Authority authorizing foreign or interstate air transportation. This corporation is designed as the chosen agency of the Government to engage in foreign air transportation.

"The creation of such a chosen monopolistic instrument is believed to be undesirable in that it eliminates the possibility of competition between American flag carriers in foreign air transportation.

"It is believed that the national defense will be best served by affording a maximum of encouragement to the development of private competitive enterprise in the international airline operations of this country, subject to reasonable regulation.

"Competition, reasonably and intelligently regulated, is best calculated to insure a healthy growth in engineering and technical development in the aircraft industry. It is therefore recommended that Title V be deleted."

In a summary at the close of the letter, the following appears:

"The cause of national defense will be best served by affording a maximum encouragement to the development of private, competitive enterprise in the international airline operations of this country, rather than by the creation of a single chosen instrument to engage in foreign air transportation."

Secretary of the Navy Forrestal wrote as follows:

"The Navy Department is definitely opposed to the monopoly or 'chosen instrument' concept. The Civil Aeronautics Act as presently drawn permits the authorization of competition among United States air carriers in international as well as in domestic air transportation to the extent necessary to assure the sound development of an air transportation system properly adapted to the needs of the foreign and domestic commerce of the United States, of the Postal Service, and the national defense.

"Regulated competition, which has been so successful in building up the domestic air transportation system of the United States, should be equally successful in producing for the United States a vigorous and efficient international air transportation system.

"It is in the interest of national defense



Adrift on the Deep—One of those in the raft 800

miles off the California Coast is Jack Stubbs, chief engineer of Australian National Air lines. It's no pose. Enroute to Pearl Harbor in an Army cargo C-47 the plane developed engine trouble and crashed the night of Jan. 18. This picture was taken 10 hours after the crash from a Coast Guard Mariner, which with an Army B-24 sighted the raft and directed surface craft to the rescue. All persons survived without injury.

to adopt a policy which will strengthen the position of the United States in international air commerce. It is believed that this position can be strengthened, and that stronger, more efficient and aggressive operations and greater improvements in aircraft, communications facilities, meteorological studies and flying techniques will be realized if competition between United States air carriers in international air commerce is permitted.

"Trans-ocean commercial aircraft are similar in general design to long range military aircraft, and therefore, the development of new and improved types of commercial equipment is desirable and in the interest of national defense.

"It is believed that competition between the United States air carriers in the international field will induce the use of different types of trans-ocean equipment and make use of the facilities of a greater number of manufacturers, thus affording the military services with valuable data concerning additional types of equipment adaptable to military operations.

"While foreign competition is expected to be formidable, it is not believed that it will provide the impetus or the benefits to be derived from properly regulated competition among our own carriers which should better equip them to maintain the competitive position of this country.

"In the opinion of the Navy Department, the one-company proposal presented would not provide the competition between United States air carriers which is deemed to be desirable."

P-61 Pilot Becomes Ace

Maj. Carroll C. Smith of Monrovia, Cal., flying a Northrop Black Widow, has become the first night fighter ace with seven Jap planes to his credit, four of which he knocked down in one night over Mindoro.

U. S., Canada Reach Accord On More Cross-Border Lines

A U. S.-Canadian aviation conference, which will result in the operation of additional air routes across the border, was held between representatives of the two governments in New York Jan. 25-26.

U. S. and Canadian delegates developed and agreed upon a draft of a bilateral agreement which will now be submitted to the two governments for approval. Under the agreement, existing routes between the U. S. and Canada were re-granted, and additional routes were allocated. Provision was also made for further lines in the future, as convenience and necessity requires.

Although route allocations remain secret, it is expected that the distribution will be on a more equitable basis than at present. The U. S. now holds a seven-to-one advantage in routes operated.

A more equitable distribution, officials said, does not necessarily mean that Canada will have a route for each U. S. route. However, by obtaining a few strategic lines, Canada can improve her position materially. The Dominion has been interested for some time in gaining entry to Chicago and Washington, and it is probable that these routes were discussed at the meeting.

The U. S. Civil Aeronautics Board will decide which U. S. carriers will fly routes

into Canada. Many applications are now on file with CAB for cross-border routes. Canadian lines into the U. S. will be operated by Trans-Canada Air Lines, under the government's policy of having all international services flown by TCA.

At present, only one Canadian service is operating into the U. S.—the Toronto-New York line. The U. S. has Seattle-Vancouver, Great Falls-Lethbridge, Fargo-Winnipeg, Buffalo-Toronto, New York-Montreal, Boston-Montreal and Buffalo-Detroit via Windsor, Ont.

It is not known yet whether the U. S.-Canadian document will be in the form of an executive agreement or whether it will be necessary to obtain Senate ratification.

Representing the U. S. at the conference were: Stokeley Morgan, chief of the State Department's aviation division; CAB Vice Chairman Edward P. Warner; CAB Member Oswald Ryan; Lewis Clark, counselor, U. S. Embassy, Ottawa, and J. Graham Parsons, Division of British Commonwealth Affairs, Department of State.

The Canadian delegation was Reconstruction Minister C. D. Howe; R. A. C. Henry, chairman of the Air Transport Board; H. J. Symington, president of Trans-Canada; John Baldwin, Privy Council Office, and Escott Reid, first secretary, Canadian Embassy, Washington.

Montreal Selected

Montreal has been selected as the seat of the Provisional International Civil Aviation Organization, established at the International Civil Aviation Conference, Reconstruction Minister C. D. Howe has announced. To date 41 nations have signed the interim agreement. However, the PICAQ will not be established until 26 countries have informed the United States that their signature on the agreement constitutes acceptance. Acceptances have not yet reached this figure.

Licensing of Non-Scheduled Air Services is Foreseen in Canada Under Amended Act

Canada is moving toward the licensing of non-scheduled or charter air services under provisions of the recently promulgated "Act to Amend the Aeronautics Act," according to a recent bulletin released by the Air Industries and Transport Association of Canada. AITA has set up an Air Transport Committee which is scheduled to make its final recommendations to the Air Transport Board Jan. 31.

Other Canadian aviation developments, as reported by AITA, include the announcement that notices have been issued by the Department of Transport, Civil Aviation Division, that Section VII of Air Regulations has been amended to require the licensing of all air services. The section formerly provided only for the licensing of international or interurban scheduled air services.

AITA reports that its Screening Committee, appointed to collaborate with officials of the War Assets Corp., on the disposal of surplus aircraft, engines, spares and engine spares, has held five meetings thus far. Lists are issued periodically by the corporation which provide details and quantities relative to types of aircraft, engines, accessories and miscellaneous items declared surplus.

column, Canada's Mr. Big of Aviation. Then we also dispatched H. T. Symington, president of TCA, and a big shot power tycoon in his own right. Howe thinks highly of Symington, the Canadian government thinks highly of Symington, and Canada thinks highly of Symington. That just about makes it unanimous. Third in this happy trinity is R. A. C. Henry, a smart operator from away back. Great civil servant, great engineer, great power authority, Henry touches nothing he does not adorn, is part of nothing he does not improve. Getting Henry to take the job as chairman of the newly appointed Canadian Air Transport Board was really worth while. Henry, who ducked the Chicago conference, because his appointment had come too soon before it to enable him to make any real contribution, and who also was acting as a Deputy Minister in the interim, had been doing his homework in the meantime, and went to New York, with all his answers ready.

The Americans, who always appreciate smart people, quickly sized up the Canadians, and realized that the Canucks knew what the score was. Having seen that in about five minutes, they got down to business. In a day and a half, the

Report from Canada

Contrast Between Chicago, New York Meetings Cited

By AUSTIN CROSS

OTTAWA—People in this country are delighted with the outcome of the conference between Canadian and American officials. They are pleased first of all, because they have got the air routes they wanted, but second and far more important, they are pleased—perhaps the word is hardly strong enough—that they can get along so well with the Americans. True, in the past, they have found out that Canadians and Americans talk the same language, they have time and time again realized that all that lay between the two countries was an imaginary line, but Canadians always meet the Americans, despite past experiences, just a little diffidently, a trifle haltingly.

The plain fact is that Canada's highest air officials got along with their opposite numbers in the United States so well that what was planned to be a three-day conference wound up in a love feast, after a day and a half. This was in pleasant contrast to the international affair held in Chicago last fall, when the air authorities wrangled all over The Loop.

Now to get down to cases, the Canadians really only wanted a few air lines. But they were getting a bit fed up with two things. The first were the piratical demands of conscienceless mouthpieces for big airlines down in Washington, who headlined their intentions as to what they

wanted to grab in Canada. We didn't go for that stuff up here very much. The second thing that burned a few Canadians a bit was the fact that Canada had only one air line into United States, but the Yanks had at least half a dozen into Canada, and wanted half a dozen more. The camel's back was rapidly being broken by this accumulation of straws.

Canada really didn't give a hoot whether Uncle Sam had 50 airlines into Canada, as long as Trans-Canada Air Lines, could fly the few lines that the Canadian government wanted TCA to fly. It seemed like a pretty fair deal. But to hear some of the more vocal Yank emissaries tell it, you would think we in Canada were back-wood punks, while the only people who really knew a Douglas from a dirigible were Americans. Happily, all this nonsense is over. The air has been cleared. It turns out that Canada has friends—plenty of friends—in Washington after all, and that we're going to get our way, and the Yanks are going to get their way, and everybody's going to live happily ever afterwards.

Canada sent her three outstanding air authorities to that conference in New York. Each was and is a czar in his own right. There is first of all, Hon. Clarence Decatur Howe, Massachusetts-born, Minister of Reconstruction, Minister (in effect) of Airways, sire of Trans-Canada Air Lines, and as oft-repeated in this

Moving boldly ahead

TODAY PAN AMERICAN is in the war up to the hilt . . . as is also every plane manufacturer.

But just as Pan American's pre-Pearl Harbor progressiveness is helping to speed Victory, so Pan American's *post-war* plans will aid both plane manufacturers and our country's position in post-war international air transport.

From the beginning of the company—in 1927—Pan American engineers have always stressed the need for using the *most advanced* flying equipment available. Last year (1944), Pan American ordered a whole fleet of new, 12,000 horse-

power, 100-passenger, 300-mile-an-hour Clippers for post-war use.

These Clippers will carry passengers at less than half of the old rates. They will cross the Pacific in 20 hours instead of the seven days of the first China Clipper . . . They will fly over the North Atlantic from New York to London in less than 14 hours.

By moving boldly ahead in this post-war period, Pan American proposes to provide mass transportation for the business man and tourist at low rates unique in air transportation.



Giant, 100-passenger Clippers will bring post-war fares within reach of the average man and woman.

**PAN AMERICAN
WORLD AIRWAYS**

The System of the Flying Clippers



scheduled three-day meet was over. What might have been a long wrangle ended up in the real American way, quickly, efficiently, and with everybody satisfied.

But this was more than a love feast, Canadians think. First of all, a basis for future air operation is laid down here. In effect, Uncle Sam is going to give Canada landing rights in the States when she wants them, knowing full well that they never will be abused. Again, Canada is going to cede air stops in the Dominion for a reasonable number of American planes. The chances are that it may ultimately work out almost on a basis of population, that is to say ten to one. But if the Canadians get the one they want, who cares?

Today, the American railways have a good many entries into Canada, and for at least half a century, this has worked out smoothly. Canada owns railways in the States, and the Americans own railways in Canada. One is hardly aware when he is in one country, when in the other. That is because the railroaders got together a long time ago, and kicked out all the nonsense about whose railway was on whose territory. The air-men are beginning to take a leaf out of the railroaders' book, and are doing the same. This is a continent of vast spaces, where the only solution to rapid travel is air.

Again, Uncle Sam, like Jack Canuck, has concerned himself in the past mainly with east and west connections in the air. Now, with those pretty well organized, the north and south possibilities begin to bob up. That is where the trouble could start, and where, at New York, it was avoided. From now on, there should not be any difficulty between Canada and United States. Canada is assured that people who talk in Washington about Canada being a pushover for new airlines, don't talk for anybody but themselves. Canadians have found that they have some good friends in the American government. Canada has learned that big American air lines want to play ball with Canada. Above all, Americans have learned, that they have a friend in Canada.

The outcome of this New York conference was covered in half a column of news. But the thing was far bigger than that. The chances are that aviation for years to come, will be affected, guided, and improved, by that brief day and a half get together in New York.

'Burlap' Airport Surfacing

The British are using a new type of airport surfacing known as P.B.S. supplied in prefabricated rolls consisting of two layers of mineral pitch which has been applied while hot to either side of an impregnated burlap-like material. The "carpet" is put down by a machine called the "stamp-licker." Seams are sealed by application of a petroleum mixture. One layer is sufficient for fighter planes, but bombers require a double carpet.

Will Sign Two Freedoms

Canada has announced that she will adhere to the "two freedoms" agreement drawn up at the International Civil Aviation Conference in Chicago, thus granting other signatories of the same document the right to fly over Canadian territory without landing, and to land for technical purposes.

'Superlative' British-Made Airliners Ready For Postwar Market Soon, Says Cripps

HOPE that another international air conference will be held has not been abandoned by the British government, Sir Stafford Cripps told the House of Commons last fortnight. He said Great Britain is approaching the competitive field of postwar civil aviation with full confidence in her ability "to make as good and better aircraft than any country in the world."

"The pressure from the other side of the Atlantic is too strong to allow us to stand still," the Minister of Production said, "and in the very near future—as the war circumstances turn more in our favor—superlative British-made air liners will be ready for the market in quantity."

There is no lack of demand, he said in response to fears expressed in the House that the "partial failure" of the Chicago

air conference and vast production superiority of the U. S. would leave Britain with little more than out-worn and out-moded war planes when the time comes for a resurgence of commercial air transport. Not only British customers, but foreign customers are expressing their desire to have British aircraft, he said.

Labor members lamented the fact that the U. S. has not shown itself more co-operative for the international regulation of postwar aviation and that the "enormous power" of America would cause chaos. Comments from the Conservative side were that competition with Americans was a "tough job with tough people," but that in the end the British aircraft industry need have nothing to fear.

Signatories to International Pacts

	Final Act	Interim Agreement	Convention	Two Freedoms	Five Freedoms
Afghanistan	X		X	X	X
Australia	X	X	X		
Belgium	X				
Bolivia	X	X	X	X	X
Brazil	X				
Canada		X	X		
Chile	X	X	X	X	
China	X	X	X		X
Colombia	X				
Costa Rica	X				
Cuba	X				
Czechoslovakia	X				
Dominican Republic	X	X	X		X
Ecuador	X		X	X	X
Egypt	X	X	X	X	
El Salvador	X				
Ethiopia	X				
France	X	X	X	X	
Greece	X		X	X	
Guatemala	X	X	X	X	
Haiti	X	X	X	X	X
Honduras	X	X	X	X	X
Iceland	X		X		
India	X	X	X	X	
Iran	X	X	X	X	
Iraq	X	X	X	X	
Ireland	X	X	X		
Lebanon	X	X	X	X	X
Liberia	X		X	X	X
Luxembourg	X				
Mexico	X	X	X	X	X
Netherlands	X	X	X	X	X
New Zealand	X	X	X	X	
Nicaragua	X	X	X	X	X
Norway	X	X	X	X	
Panama	X				
Paraguay	X				
Peru	X	X	X	X	X
Philippine Commonwealth	X	X	X	X	
Poland	X	X	X	X	
Portugal	X	X	X		
Spain	X	X	X	X	
Sweden	X	X	X	X	X
Switzerland	X				
Syria	X	X	X		
Turkey	X	X	X	X	X
Union of South Africa	X				
United Kingdom	X	X	X	X	X
United States	X	X	X	X	X
Uruguay	X		X		
Venezuela	X	X		X	X
Yugoslavia	X				
Danish Minister	52	30	37	30	19
Thai Minister	X	X	X	X	X
	54	41	39	32	21

* With reservation. † Ad referendum.

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FOR MODELS
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PRODUCTION SCORE CARD 10 FEET HIGH

Here, month after month, Grumman records their amazing production of Hellcats, every new figure boding more bad news for the Japs.

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Battle Born-Grumman Built

"Give us planes with more speed, more climb...something that will go upstairs *fast*. And we need them *quick*." That's what Navy pilots called for in the dark days that followed Pearl Harbor when the air over Pacific Islands was full of slithering Jap Zeros.

Grumman Corporation answered that call...quickly...with Hellcats, one of the fastest fighters in the sky.

The first handmade experimental model flew in July, 1942. By the end of 1943 Hellcats were battle-famous. Today, thanks to the amazing Grumman production record, thousands of Hellcats roam the Pacific, their altitude, maneuverability, speed,

range and climb enabling our Navy fighters to pile up ratios of 5 to 1 and 10 to 1 against the Japs.



OFFICIAL U.S. NAVY PHOTO

THE SHOCK IS BRUTAL when a heavy Hellcat smacks the carrier deck. But U. S. Royal Airplane tires are engineered for that kind of service. Their extra strong rayon cord construction provides the reserve strength that absorbs those shocks, their sharp edged tread blocks give the sure traction that holds the plane under control, brings it to a safe stop.

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READY FOR DUTY. Hellcats receive the final OK of Navy Inspectors...are promptly flown to Navy bases to begin their spectacular military career.



OFFICIAL U.S. NAVY PHOTO

WINGS FOLD BACK AS NEATLY AS A BIRD, making it possible to pack more Hellcats on the carrier deck, pack more punches when the battle starts.



OFFICIAL U.S. NAVY PHOTO

HELLCATS AT THE READY for deadly blows at Jap planes, ships, island bases. The Hellcat was the first American plane built out of combat experience in World War II.



OFFICIAL U.S. NAVY PHOTO

START OF A STRIKE—this Hellcat gets the take-off flag. A belly tank provides extra fuel...but adds weight. Another reason why tires must be strong yet light.



OFFICIAL U.S. NAVY PHOTO

GOING UPSTAIRS FAST. The Hellcat flies in the 400-mile-an-hour class, fights at 35,000 feet and above and has a range of 1500 miles or more.



OFFICIAL U.S. NAVY PHOTO

WHEELS DOWN, BRAKES ON, HOOK OUT—this Hellcat returns to its "nest". As it "hits the deck" tires must have plenty of reserve strength to take the shock.

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BATTLE-FAMOUS HELLCATS LAND ON STRONGER, SAFER TIRES

As fighters go, the Hellcat is a big plane. Its wide-tread rugged landing gear asks favors of no landing field . . . is equally at home on the decks of aircraft carriers or improvised front line airstrips.

Tires must be strong to take this punishment yet light to cut down every ounce of unnecessary weight, make possible more fuel, more armor, more fire power. Development work by "U. S." Airplane Tire Engineers helped to make such tires possible. They pioneered the building of lighter, stronger tires made with rayon cord . . . the tires that are now standard of the Service.

Listen to the Philharmonic-Symphony program over the CBS network Sunday afternoon, 3:00 to 4:30 E.W.T.

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Congress Faces Most Vital Aviation Session In History

McCarran Bill May Get Top Spot on Hearing Calendar

By GERARD B. DOBBEN

THE 79TH CONGRESS may turn out to be the most important legislative assembly in aviation history.

War has made this Congress aviation conscious and the problems it will be required to solve and the policies it necessarily must lay down will undoubtedly affect the future of U. S. domestic and international aviation for many decades.

It has been said that the war has advanced aviation 50 years yet this Congress, in the next 12 or 15 months, must evaluate and implement this progress in such a way as to make possible a maximum development and benefit for air transportation in the years to come.

This Congress faces the problems of transition. Its two predecessors, with a war of survival dictating most of the courses of action, faced relatively few alternatives in gearing the country for war but this Congress must exercise far greater wisdom and discretion in laying the groundwork for the return of peace.

Many Aviation Bills

Some evidence of the importance that the legislators are attaching to aviation matters may be gleaned from the fact that nearly two score aviation bills were dropped into the legislative hopper during the first 30 days of the new session. These bills touch on virtually every phase of flying while other bills, of a more general nature, dealing with such subjects as surplus disposal, contract termination and reconversion all have a direct application to the aircraft manufacturing industry and the place it will occupy in the peacetime economy of the country. Linked up with the whole question is, of course, future policy with reference to aviation in national defense, both as to training of pilot personnel as well as the influence of a national defense program in helping keep alive a virile manufacturing industry.

While the more pressing matters of manpower and materiel shortages were claiming first attention in the House, chairmen of standing and special committees dealing with aviation were giving thought to early scheduling of important aviation bills.

In the Senate, it appears that the Senate Commerce committee will give almost top position on its hearing calendar to postwar aviation matters, including the McCarran bill (S. 328) which would create an All-American Flag Line Inc. as the instrumentality through which this country would operate in the international air transport field.

This bill has considerable support in the Aviation subcommittee of the Commerce committee where the majority of the membership is believed to lean heavily toward the so-called Chosen Instrument policy. The Aviation sub-committee has two new members—Senators John H.

Pennsylvania Charges 'By-Passing' of States

The Pennsylvania Aeronautics Commission is seeking to have amended the bills now before Congress which would authorize "by-passing" state governments in the administration of federal airport funds.

The bills opposed by the Commission would provide federal appropriations in accordance with the national airport plan developed by the Civil Aeronautics Administration. They are the Randolph Bill, HR-4; McCarran Bill, S-2; and Lea Bill, HR-674.

The Commission would amend the bills to require funds allocated on a federal-state matching basis for airport construction and improvement to be channeled through the proper state agency and from the state to the political subdivisions. It was pointed out that the established pattern of federal-state co-operation in highway development has operated successfully.

Overton (D. La.) and Theodore G. Bilbo (D. Miss.) who have not been particularly active in aviation matters before. It is not felt that they will contribute materially to changing the present pro-monopoly line-up on the chosen instrument question.

A thorough hearing on the Lea Aviation bill (H. R. 674) is definitely in the cards although temporarily this bill has had to give way for hearings on the Railroad Retirement bill. Proponents of this bill in the last session of Congress now realize that they made a mistake by shutting off the hearings before the opposition had had its full say. This gave opponents of the measure a talking point that they would have missed had they been given the opportunity of airing their views completely. As a result, the opposition did its talking at the National Aviation Clinic effectively a year ago this summer and the Lea bill became a dead issue for the remainder of the 78th session.

There was a considerable degree of conciliation in the air at the Clinic last November and because the atmosphere has been cleared, there appears to be a disposition on the part of all concerned to work out the problems on a more or less give and take basis. While there has been a resurgence of state rights in recent years, due to the general heavy centralization of authority in Washington, many of the states have experienced men directing aviation affairs. They realize that the plane is less susceptible to control on a state basis than any other mode of transportation, but on the other hand they also realize that state and local governments are entitled to recognition in various phases of aviation development where local interests are of a paramount character.

The Lea bill will bring these issues into sharp focus and while compromises appear certain, aviation leaders on both sides are hopeful that sound legislation will emerge from a full dress hearing in



Hoist Aids Rescue—A special hydraulic hoist developed by Vickers, Inc., Detroit, is speeding the lifting of weakened men from rafts or rubber boats into Coast Guard helicopters. The hoist is controlled by the pilot and can lift a 400-pound load at two and one-half feet a second. It is used in connection with a Coast Guard-developed ring-buoy harness which can be opened to form a U in which a seat strap is hung. The new hoist is shown in action at the top, and the lower photo is a close-up of the hoist which is attached to the helicopter just below the rotor.

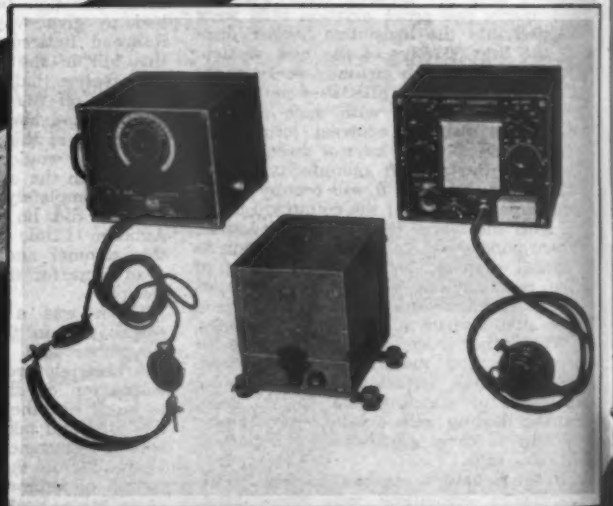
committee and in debate on the floor of Congress.

One bill—H. R. 550—introduced by Rep. Jennings Randolph (D. W. Va.) will give Congress an opportunity to decide whether the peacetime machinery of the military arm of the Government should be overhauled by creating a Department of Defense, with under-secretaries of War, Navy and Air on an equal basis. There will be considerable support for this bill, both in the military establishment as well as in Congress although the old departmental traditions and jealousies will be hard to overcome.

It appears that Congress will go a long way to establish or strengthen the neces-



AVIATION RADIO





DESIGNED BY RCA

in Grasshopper Planes on Every Front

No type of plane in any war theater has earned more praise than the "Grasshopper." Liaison duty—often performed in the thick of battle—is its particular job.

The lives of hundreds of men, and the holding of key positions may depend on the reliability of the radio equipment in these aircraft.

Especially designed, RCA light-plane radio is standard on all Grasshoppers. Thus, the fifteen

years of RCA engineering experience in the light-plane field has successfully met the exacting demands of this service.

This equipment is only one of RCA's engineering contributions to military aviation. In the postwar period RCA will supply commercial and private flying with equally efficient equipment.

BUY MORE WAR BONDS



RADIO CORPORATION OF AMERICA

RCA VICTOR DIVISION • CAMDEN, N. J.

sary technical services which have to do with safety in flying. Rep. Alfred L. Bulwinkle (D. N. C.) has introduced two bills of this nature. One provides for an investigation of thunderstorms (H. R. 164). Rep. Bulwinkle lists three or four airline crashes which were laid to this type of atmospheric disturbance. Another bill by Rep. Bulwinkle (H. R. 1814) would authorize the Weather Bureau to make a study of the need for establishing and coordinating the exchange of meteorological data on an international basis. The Weather Bureau would be authorized to promote and develop meteorological science and act as a center for research projects in aeronautical meteorology. Still another bill by Rep. Bulwinkle (H. R. 165) provides funds to improve propulsion devices for aircraft such as jet propulsion.

Rep. Joseph P. O'Hara (R. Minn.) has introduced two bills dealing with disability and death compensation for airline employees and passengers who are involved in plane crashes. He hopes to clear up some of the confusion that now exists because of the welter of state laws dealing on this question as well as the need for legislation which will establish court jurisdiction as far as interstate airline accidents are concerned.

Rep. Kard Mundt (R. S. D.) based on information which he gathered on a trip to Europe for the House Foreign Affairs Committee, recommended to Congress the postwar creation of a 5,000-plane "international peace patrol of the air" with power to strike at the military forces of any nation which might seek to disrupt the peace in the years following the present conflict. He proposed that these planes, in complements of 1000 each, should be based at Stephenville, Newfoundland; Prestwick, Scotland; Cairo, Egypt; Natal, Brazil and an American base near China and that they would operate under the joint chiefs of staff of the U. S., Britain, Russia, China and France.

Correll Warns Against State Bills That Would Set Up Trade Barriers

The retarding effect that certain types of state regulatory laws would have on the development of domestic air transportation in the United States have been outlined by Col. Edgar S. Gorrell, president of the Air Transport Association of America.

Col. Gorrell pointed out that bills have been introduced in many state legislatures which, if enacted, would set up trade barriers which would greatly hinder the growth of air transportation in this country. He mentioned specifically the Uniform State Air Carrier bill recommended by the National Association of Railroad and Utilities Commissioners. These bills, he stated, have been introduced in the legislatures of Massachusetts, Missouri, Ohio and Texas.

He also called attention to proposals for the elimination of state gasoline tax refunds, which if made into law, would seriously affect operating costs of the interstate air carrier. Even if these refunds went for airport development generally throughout the states, the fact that interstate carriers operate into relatively few of the total number of airports of a state would make such a policy unfair to both the air carriers and the communities which they serve.

Each State's Share Under Randolph Bill

Each state's share of the 100 million dollars which would be expended annually for 10 years in airport development under the terms of the Randolph Bill H.R. 287, introduced Jan. 3 by Rep. Jennings Randolph (D., W. Va.) has been computed by the author of the bill.

The allocation of these funds to the states would be on the basis of a formula which takes into consideration three major factors, including the state's population, area and number of registered civil aircraft (other than those owned by scheduled air carriers) as these totals relate to the population, area and number of registered aircraft for the entire country.

Apportionment of funds, based on the 1940 population census, would be:

State	Apportionment	State	Apportionment
Alabama	\$1,263,651.16	Nevada	\$2,568,765.86
Arizona	1,914,417.22	New Hampshire	267,977.67
Arkansas	1,687,828.41	New Jersey	2,031,273.44
California	2,642,394.32	New Mexico	1,852,615.16
Colorado	2,316,754.36	New York	7,902,621.43
Connecticut	799,879.51	North Carolina	2,008,570.29
Delaware	52,423.90	North Dakota	1,223,253.06
Florida	965,339.45	Ohio	4,104,326.35
Georgia	1,826,398.43	Oklahoma	1,491,193.90
Idaho	1,199,748.47	Oregon	2,000,704.30
Illinois	5,576,380.72	Pennsylvania	6,256,597.44
Indiana	2,630,435.10	Rhode Island	478,230.24
Iowa	2,359,392.20	South Carolina	1,106,962.83
Kansas	2,091,249.51	South Dakota	1,933,425.95
Kentucky	1,946,779.90	Tennessee	2,318,154.15
Louisiana	1,142,629.05	Texas	5,024,633.77
Maine	590,249.23	Utah	1,997,673.85
Maryland	1,075,275.70	Vermont	257,020.18
Massachusetts	2,041,906.36	Virginia	1,240,910.11
Michigan	2,880,135.45	Washington	1,564,230.86
Minnesota	2,687,430.69	West Virginia	1,227,002.75
Mississippi	857,021.70	Wisconsin	2,013,195.69
Missouri	2,926,455.96	Wyoming	2,060,259.58
Montana	2,111,191.29		
Nebraska	1,435,011.45	U. S. Total	\$100,000,000.00

$$\text{Formula: } m = \frac{\frac{a^2}{d} + \frac{b^2}{d} + \frac{c^2}{d}}{\frac{a^2}{d} + \frac{b^2}{d} + \frac{c^2}{d}} \cdot \frac{M}{3}$$

m = State share of funds.

M = \$100,000,000.00 federal funds available for apportionment.

a = Population of state according to 1940 census. District of Columbia's population of 663,001 was deducted from U. S. total and was not included elsewhere.

b = Area of state according to Rand-McNally Atlas; District of Columbia's area of 69 sq. mi. was deducted from U. S. Total and was not included elsewhere.

c = Number of registered civil aircraft by states with valid airworthiness certificates as of Jan. 1, 1944. Owner's mailing address was used. Air carrier aircraft in scheduled operation were deducted from total for state in which they were registered and from U. S. total. Also deducted from U. S. total were all aircraft registered in District of Columbia.

d = Number of civil airports as of Apr. 1, 1944. Included are CAA intermediate fields and civil fields taken over by Army and Navy. Not included are Army- and Navy-owned fields and airports in District of Columbia. Because no tabular information is available, seaplane bases are not included.



B-29s Made Ready for War—This photograph is the first to be released showing Superfortresses on one of the production lines at the Continental-Denver Modification Center operated by Continental Air Lines. It is one of the two centers in the nation devoted exclusively to work on B-29s and is the only one operated by an airline. One of the modifications done at the Continental-Denver Center is the conversion of standard B-29s to special B-29 photo reconnaissance planes.

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The Birdmen's Perch

By Major Al Williams, ALIAS, "TATTERED WING TIPS"
Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 30, Pa.

WE WERE talking to one of the Gulf Service Engineers.

These fellas are like doctors—they can prescribe the proper lubrication treatment for every friction disease you ever heard of. This particular Engineer had been working on boats. His special pet was the 10,000-ton Liberty ship.

They're 441 feet long and you could practically float them in the Gulf products used in their production and operation. Many parts of these ships begin life in a bath of Gulf cutting oil, or quenching oil.

In operation, the crankshaft bearings are apt to be lubricated with Gulf Marine Engine Oil. So's the 160-foot propeller shaft, the steering engine, the bilge, fire, freshwater, and boiler feed pumps. And the cargo winches (10 of 'em!) are probably using special lubricants and rust preventives recommended by the Gulf Service Engineer.

We told you about these ships to



show you how diversified Gulf's lubrication knowledge is. And to point out that no matter what your lubrication problem is, one of Gulf's Service Engineers can help you find a solution to it.

This variety of experience enables Gulf to direct vast lubrication knowledge at specific friction problems... such as aviation's.

See?

LITTLE KNOWN FACTS:

"The impeller wheel of a turbo-supercharger attains speeds of 400 revs per second!" Virgil E. Comstock, 2826 H Street, Sacramento 16, California.

"The B-29 has more firepower than a regiment of artillery had during the Civil War!" Eugene G. Lesney, 8166 Elgin Ave., Detroit 5, Mich.

"Captured Ju 52M3's are being used in the AAF where they are called C-79's!" Stephen F. Wilder, Phillips Academy, Andover, Mass.



We just sent Flutter, the Oily Bird, down to the corner to mail your commissions as Perch Pilots (bottom rung), fellas. Four more good-enough-to-print Little Known Facts About Well Known Planes will get you promoted to Senior Perch Pilots. Mail 'em to us at the above address.

WELL KNOWN FACTS:

The N.A.C.A. says the efficiency of high-performance airfoils can be affected by a film of dirt on the surface!

Now we'll apply that lesson-in-trifles to Gulfpride Oil:

Of course, dirt—and other foreign particles—are removed from oil in the first refining steps. And at other points in the refining procedure more non-lubricating parts of the crude are subtracted... tars, gums, and the volatile parts of petroleum.

When you get through, all but an insignificant fraction of your lubricating oil is ready to lubricate. But this "insignificant fraction" of easily broken-down

hydro-carbons is exactly the part of oil that forms carbon and makes sludge!

That's why Gulf's supplementary refining technique, the Alchlor Process, is designed to get more of these dangerous "trifles" out of Gulfpride Oil.

So get some. Now!

WHEN THE WAR'S OVER:

Your plane is going to be a lulu!

It'll be more comfortable for long hops. It can be equipped with a relatively inexpensive constant-speed prop. It will probably have around 50% more horsepower in an engine of very nearly the same weight as today's. And of course, your Good Gulf Aviation Gasoline will be more powerful—using ingredients that



are now going into the super-fuels for the mighty engines of the B-29's!

Yep, postwar fliers can look forward to all these refinements in their favorite pastime, but...

... the war is still one heck of a long way from being anywhere near won, so get some more—a flock more—of those War Bonds!

Gulf Oil Corporation and Gulf Refining Company...makers of



GULF AVIATION PRODUCTS

OIL IS AMMUNITION—USE IT WISELY

Move to Divorce Federal Airport Plan From Other Air Bills Likely

INDICATIONS are that there will be a definite move on the part of a considerable group in Congress, supported by many state and some national aviation associations, to divorce the federal-aid airport program from any other legislation dealing with the general subject of aviation.

The Lea Aviation bill H. R. 674, introduced by Rep. Clarence F. Lea (D. Calif.) chairman of the Interstate and Foreign Commerce Committee, is the only bill which combines the National Airport plan with such other important aviation matters as the proposals to reconstitute the Civil Aeronautics Authority and the Safety Board as independent, regulatory agencies of the government.

Slated for hearing by March, the Lea bill apparently will face considerable opposition from public witnesses on the score that the issues involved in a federal-aid airport construction program should be settled apart from some of the equally important considerations of postwar aviation policies as they relate to Federal controls. While there may be some doubt as to whether this opposition will be strong enough to force the committee to divorce these issues before an airport bill is reported to the House, it is definitely known that should this strategy fail, attempts will be made to do so on the floor of the House.

"We want this Federal-aid airport program to stand on its own feet and be handled like Federal-aid highway bills have always been handled," one member of Congress, active in aviation, has said.

Other Agencies Interested

Meanwhile, reports from interested Government agencies are eagerly awaited. There has been some talk that the Federal Works Agency, for instance, based on its responsibility for administering postwar projects to aid in solving unemployment, may fight to obtain some part of the jurisdiction of carrying the program into action. Several of the authors of Federal-aid airport bills have stressed the need of having the airport construction program set-up so as to take up the slack in employment when the war ends.

On the other hand, William A. M. Burden, assistant Secretary of Commerce, has stated that a national airport system is so essential "that its development cannot be laid away on a shelf of public works plans for use only in a period of widespread unemployment."

The Budget Bureau is another agency which may have considerable influence on the considerations dealing with the postwar unemployment angles. It is understood that the Budget Bureau held up the submission of the National Airport Plan to Congress for several weeks because of these and other considerations, although its position in the matter has not been publicly announced.

That airport legislation is to receive serious consideration on Capitol Hill during the next month is evidenced from the fact that John Hunter, of the Civil Aeronautics Administration Airport Section, has been loaned to the Interstate and Foreign Commerce committee, for an indefinite period.

Costello L. A. Chamber Aid

John M. Costello, former U. S. representative (Dem.) from California and active for some years on the House Military Affairs Committee, has been made general counsel and manager of the Washington office of the Los Angeles Chamber of Commerce. His office is at 900 17th Street,

Three Billion in Aircraft Called for by Navy in '45

The 1945 Navy procurement program, according to a statement released by Secretary of the Navy James Forrestal, calls for production of \$15,404,600,000 worth of facilities, including \$3,166,200,000 for aircraft and aircraft equipment.

Forrestal said that the Navy plans to acquire this year 28,591 planes. The Navy accepted more than 30,000 planes last year and now has about 37,000 planes of various types.

Status of Aviation Laws by States

Thirty-six states have aeronautical commissions or other regulatory agencies for aviation, according to a table prepared by the Civil Aeronautics Board. Forty-seven states have laws dealing with airport development.

The status of state aviation laws, prior to the opening of current state legislative sessions, is shown in the following table:

	Safety regulation						Provision for zoning	Economic regulation, certificates of convenience	Regulatory body		
	Federal license	Federal or State	State license	Air traffic regulation		Airport development			Aeronautics Commission	Other commission	No commission
	All aircraft	All pilots	All aircraft	All pilots	All aircraft	All pilots					
Alabama							X				
Arizona	X	X					X				
Arkansas	X	X					X				
California	X	X					X				
Colorado	X	X					X				
Connecticut					X	X	X				
Delaware	X	X					X				
Florida	X	X					X				
Georgia	X	X					X				
Idaho	X	X					X				
Illinois	X	X					X				
Indiana	X	X					X				
Iowa	X	X					X				
Kansas	X	X					X				
Kentucky	X	X					F				
Louisiana	X	X					X				
Maine	X	X					F				
Maryland			X	X			X				
Massachusetts	X	X					X				
Michigan	X	X					X				
Minnesota			X	X			X				
Mississippi	X	X					X				
Missouri	X	X					X				
Montana	X	X					F				
Nebraska	X	X					X				
Nevada	O	O					X				
New Hampshire	X	X					X				
New Jersey			X	X			F				
New Mexico	X	X					F				
New York	X	X					X				
North Carolina	X	X					X				
North Dakota			O	X			X				
Ohio	X	X					F				
Oklahoma	X	X					X				
Oregon			X	X			X				
Pennsylvania	X	X					X				
Rhode Island	X	X					F				
South Carolina	X	X					X				
South Dakota	X	X					F				
Tennessee	X	X					X				
Texas	X	X					X				
Utah			X	X			X				
Vermont	X	X					X				
Virginia	X	X			X	X	X				
Washington	X	X					F				
West Virginia	X	X					X				
Wisconsin	X	X					F				
Wyoming	X	X					X				
Total	40	40	6	6	3	3	34	47	34	11	25

"O"—Applies to commercial aircraft, pilots, or operations only.

"F"—Indicates either statutory instructions or administrative policy of promulgating rules substantially the same as those of the Federal Government.

In reply refer to Enlistment
and No.

NAVY DEPARTMENT
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON 25, D. C.

Serial 411236



Op-36-R11
18 Sept. 1944

No Objections to Publication
For Naval Security Reasons.
OFFICE OF PUBLIC RELATIONS—U. S. NAVY
Review Section 9/30/44-2746
Serial 411236

Summary of Operations of
XPB2M-1R (1Brs). 5 Oct. 1943 - 15 Sept. 1944

7 August 1944	Alameda to Honolulu - total load - 26,600
9 August 1944	Honolulu to Alameda - total load - 22,237
13 August 1944	Alameda to Honolulu - total load - 25,590
15 August 1944	Honolulu to Alameda - total load - 20,675
17 August 1944	Alameda to Honolulu - total load - 25,850
20 August 1944	Honolulu to Alameda - total load - 20,936
23 August 1944	Alameda to Honolulu - total load - 26,500
25 August 1944	Honolulu to Alameda - total load - 20,465
28 August 1944	Alameda to Honolulu - total load - 27,836
30 August 1944	Honolulu to Alameda - total load - 21,236

Note: Summary of August operations:

Alameda to Honolulu

4786 gals.
13.8 hrs.
26,475 lbs.

Average fuel consumed
Average flight time
Average load carried

Honolulu to Alameda

5355 gals.
14.8 hrs.
21,110 lbs.

Official Navy Records Show . . .

The Martin Mars Means Ease of Maintenance!

TAKE a look at the above Navy release and you'll see why we say the Martin Mars means ease of maintenance. Only one page of the release is shown, detailing operations for August 1944. Between the 7th and the 30th of that month the Mars made 10 trips between Hawaii and the Mainland. Since then she has steadily stepped up performance and in November completed 14 flights between Hawaii and California, flying a total of 33,600 miles and carry-

ing more than 300,000 pounds of cargo. Her current utilization is 9.7 hours per day.

This high availability of Mars flying boats will pay substantial dividends to postwar airline operators. Less time for overhaul means more time in profitable operation. This savings, along with unusually low ton-mile costs and the fact that war's end will find Mars assembly lines tooled and manned for postwar delivery at a minimum purchase price, all com-

bine to make the most economical overocean aircraft yet built. Companies interested in detailed performance data on the Mars, write THE GLENN L. MARTIN COMPANY BALTIMORE 3, MD.

Martin
AIRCRAFT

Builders of Dependable Aircraft Since 1909



Heated Runways—How the airport of the future will look after a snowstorm as contrasted to present day airports if the system of snow melting lines proposed by engineers of A. M. Byers Co. is adopted is shown in these two pictures. At the top is an artist's conception of the heated runway, while at the bottom is the Pittsburgh Airport after one of this winter's heavy snowfalls. Some airline operations executives fear cost of the proposed system would be prohibitive. They say that satisfactory results can be obtained by using rollers instead of snowplows at some terminals.

Airworthiness of Fabric Determined at National Bureau of Standards Lab

A mechanical device for determining the airworthiness of the fabric which still covers many airplanes and control surfaces has been developed at the National Bureau of Standards, Department of Commerce. It consists of a spring-driver hammer that propels a plunger against the surface being tested.

Results of tests with the new instrument at 73°F were found to correlate well with the strength of the doped cloths and with the quality of the dope on them. Impact tests at -40°F and 160°F showed the value of the instrument for studying the changes in doped cloths with temperature such as would be experienced by high altitude bombers, many of which have fabric covered control surfaces.

Expect No Hearings On SWPA Act Before Next Month, Report

Hearings on proposed amendments to the Surplus War Property Act probably will not start before March 1.

Sometime before April 1, Congress is slated to receive the first comprehensive report and recommendations of the newly constituted three-man War Property Administration Board, which is now in charge of administering the Act. Some of the alleged defects of the present Act are expected to show up by that time and the new Board will undoubtedly have recommendations for improving amendments for the subcommittee on Expenditures in the Executive Departments to consider. In addition, the subcommittee itself will attempt to revise the Act to include some of the provisions which were eliminated in the conference fight between House and Senate when the Act was passed last September.

Meanwhile interested organizations, including labor and business, may cooperate in a countrywide educational campaign as to the issues and problems involved in surplus property disposal. The danger of dumping surpluses will be emphasized.

House committee members report they are interested in getting local community groups to study the problem so that an intelligent public opinion might be formulated.

Attorney General Francis Biddle, in a preliminary report to Congress as is required under the War Mobilization and Reconversion Act of 1944, warned that precautions must be taken in the disposition of the \$100,000,000,000 worth of government war property and material, to prevent "the same concentration of industrial power" which he said occurred in the award of government war contracts.

The Justice department, Biddle said, is now conducting a number of surveys, the results of which will be submitted to Congress later. The subjects include transportation, aluminum, magnesium, aviation gasoline, aircraft, radio and electrical equipment.

The newly created Surplus War Property Board is now functioning, with former Senator Guy M. Gillette, of Iowa, as chairman. Gillette was confirmed by the Senate Jan. 18.

Bulwinkle Measure Prohibits Foreign Air Carriers From Merging With Any U. S. Firm

The bill H.R. 166 introduced in the House by Rep. Alfred L. Bulwinkle (D., N. C.), to amend Section 408 of the Civil Aeronautics Act would place prohibitions on foreign air carriers merging and gaining control of U. S. companies which are common carriers, other than air carriers.

The Bulwinkle measure was introduced as a companion bill to legislation introduced by Chairman Lea (D., Cal.) of the House Interstate and Foreign Commerce Committee, which would reconstitute the Civil Aeronautics Authority as an independent regulatory agency, and reestablishes the Air Safety Board under the title of Office of Director of Safety (H.R. 674).

The present Section 408 of the Civil Aeronautics Act controls the consolidation, merger and acquisition of control of air carriers. The Bulwinkle measure would considerably expand some of these provisions, in addition to adding several new prohibitions. Under H.R. 166, hearings would be held on these matters only if requested. The present Act requires hearings.

Among prohibitions provided in the Bulwinkle measure are those preventing a foreign carrier from merging with a U. S. company or citizen engaged in any phase of aeronautics. This would prevent U. S. aircraft manufacturers, for example, from merging with foreign airlines.

The bill would also prevent U. S. air carriers from acquiring control of surface carriers. The present Act does not prohibit this, although it specifically provides that a surface carrier may not control an air carrier.

Also prohibited in the proposed legislation is a prohibition against a person who is a citizen of the U. S. and engaged in any phase of aeronautics—other than an air carrier—from acquiring control of a foreign air carrier.

The provisions of the bill were expanded to include contract as well as common carriers, although legal experts said the term "contract carrier" has never been clearly defined, except that it falls outside the classification of common carrier.

Separate Air Arm for Navy Advocated by Adm. Ramsey

A separate air arm for the Navy as a part of a postwar security program was advocated by Rear Admiral Dewitt C. Ramsey, chief of the Bureau of Aeronautics, USN, at a recent testimonial dinner to Edward N. Scheiberling, national commander of the American Legion in New York.

"While it is true that our experience in this war clearly points to the interdependence of land, sea, and air forces in many theaters of action, successful coordination of the overall effort cannot be achieved unless the personnel of each are specifically trained and indoctrinated in the specialized use of the weapons and tactics peculiar to that arm," he said.

"The effectiveness of the Navy must depend upon an integrated control of its own naval aviation from the research and design stage of the airplane through its actual use in the field of combat."

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Warehouse on Wings

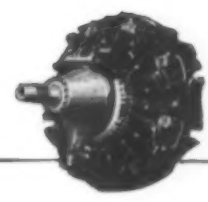
If all his sources of supply were just across the street, a retailer could cut inventories to the bone, yet never miss a sale. Now, by specifying delivery via air, a merchant can in effect move those warehouses next door. Ordering just ahead of the market, he can ride the peak of a season, or a style, or a rush for a new product. His capital turnover is rapid; he needs less credit. Overstocking of highly expensive or seasonal items is avoided.

But the list of items which can move economically in the warehouse on wings is not long enough at present. The job now is to explore all

fields of merchandising, to find more goods which can travel via air with benefit both to merchant and to air carrier.

Still another job is to bring rates down so additional goods can move economically via air. Such rates evolve from maximum efficiency of operation and also from full payloads. Wright Cyclone engines, with a payload bonus due to their lower weight ratio, and with ease of maintenance and low fuel consumption to provide efficiency, are helping to make such rates a reality.

WRIGHT AERONAUTICAL CORPORATION
Paterson, New Jersey, U.S.A.



Cyclones Save 3 Ways

- LESS WEIGHT—MORE PAYLOAD
- LOWER FUEL CONSUMPTION
- REDUCED MAINTENANCE

WRIGHT

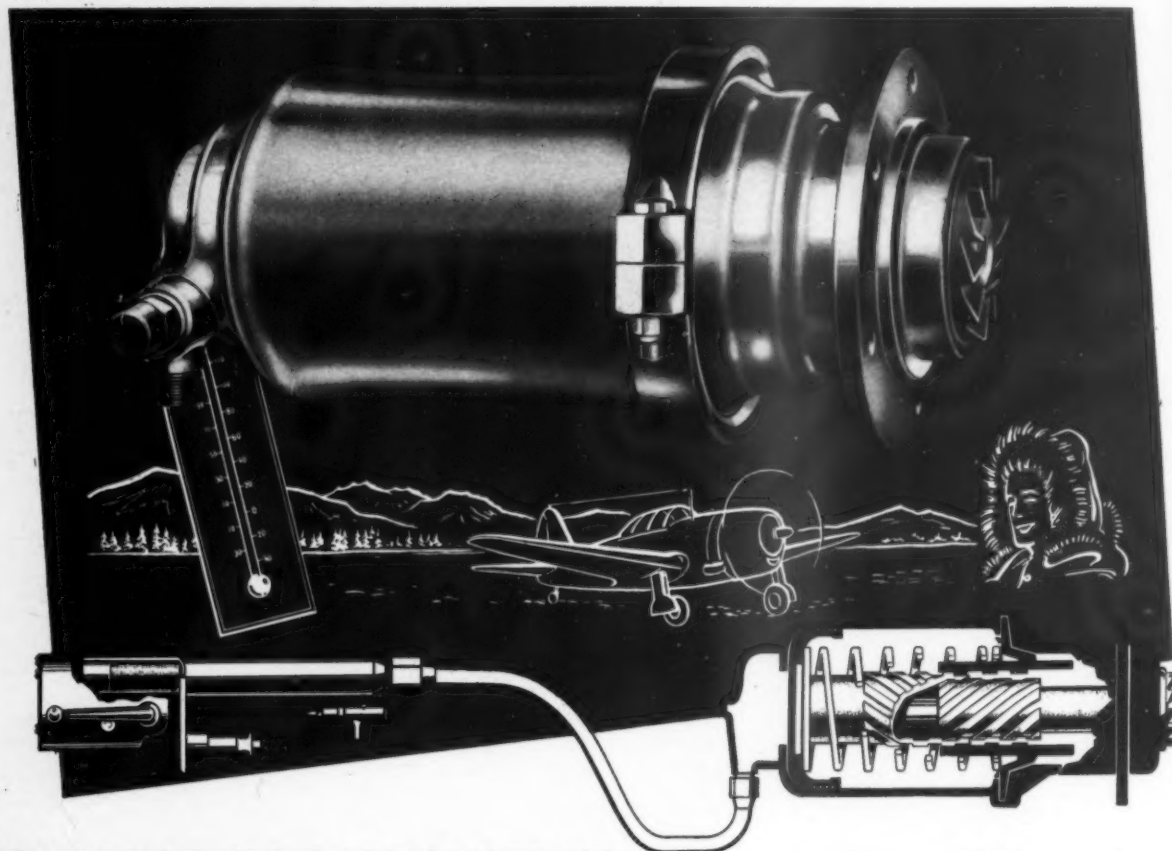
Aircraft Engines

A Division of
CURTISS-WRIGHT CORPORATION

WRIGHT POWERS THE TONNAGE OF THE AIR

Specialists in ARCTIC STARTING

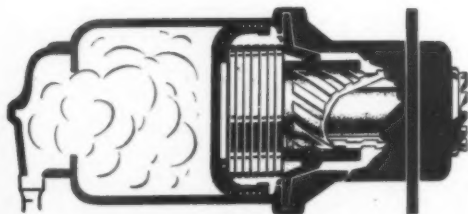
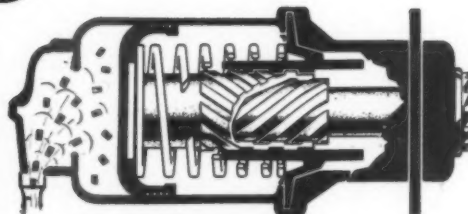
The Breeze Cartridge-type Engine Starter, designed for quick, positive action even at the lowest temperatures, makes possible an unlimited number of starts without the handicap of a heavy battery. Operating on the familiar spiral-drive principle, the lightweight, yet tremendously strong mechanism of the Breeze Starter transforms a 30-ton thrust into 180 RPM of the crankshaft. The various models of the Breeze Cartridge Starter, in service today with many of America's fighting aircraft, will spin into life engines ranging from 300 to more than 2000 horsepower.



- ① Cartridge is placed in breech ready for electrical contact which will ignite quick-burning powder and drive slow-burning pellets into combustion chamber.
- ② Combustion is completed in combustion chamber, rapidly building up pressure of gases on piston. Power stroke begins while helical splines impart accelerating rotary motion to clutch jaw.
- ③ As power stroke is completed, clutch jaw has spun engine through 3 revolutions. Exhaust valve in head opens and helical spring returns piston to starting position.

Manufactured under Coffman patents

Breeze
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Newark, New Jersey



RIGHT NOW he's busy shipping a load of trouble... 4000 pounds of T.N.T. for delivery to Germany or Japan, via Air Express.

He and his crew sweat inside the bellies of our planes, manhandling 500- and 2000-lb. bombs. Theirs is a back-breaking job—and a delicate job.

Drop one of those babies and it may crush every bone in your body. Make a mistake about a fuse and you'll never see home again.

If these men can load *this* kind of cargo, they can load *any* kind of cargo. And "shipping by air" will remain a lifetime habit of theirs.

Meet the head of the shipping department!



IF IT'S AN AVIATION PICTURE...it's a picture of Esso Aviation Products...the T.N.T. in those blockbusters was made with toluene first produced commercially from petroleum by Esso chemists...the hydraulic oil used in the control systems, brakes, shock absorber struts of the plane is likely to be Univia J-43, an oil specially developed by us for the Army and Navy, which permits satisfactory operation of those parts from minus 65°F to 160°F above. It has a pour point of minus 80°F and the most unusual viscosity index of 226. Other Esso Univia oils are tailored for special aviation needs. This pace-setting line of hydraulic oils is further proof that "You can depend on Esso Aviation Products."

Hope is Held for Simplicity In Non-Scheduled Regulation

Trial Period May Precede Setting of Permanent Policy

THE INVESTIGATION by the Civil Aeronautics Board into non-scheduled air operations, set for hearing March 1, appears almost certain to result in some form of economic regulation for the operator who in the postwar era proposes to offer his services to the public as a common carrier.

CAB Member Harlee Branch expressed the hope that these regulations could be kept as simple as possible, and that the states will not muddy the waters with variegated legislation which could result in a situation comparable to that faced by the trucking industry in interstate commerce.

Branch said the CAB's move to look into the non-scheduled field probably will follow the lines of its feeder investigation, which resulted in a recommendation that such operations be given a trial period before a permanent policy is set up.

The National Aviation Trades Association, headed by Col. Roscoe Turner, has suggested in this connection that the CAB cannot look into the future and attempt to regulate a business which does not already exist. NATA asked that regulation be saved until sufficient experience is gained in the non-scheduled field to see exactly what is needed in the way of economic control.

Since 1938, non-scheduled operators have served the public in various capacities under a CAB order which exempted them from the economic regulations of the Civil Aeronautics Act. But that same CAB order pointed out the need of looking into the economic effect of non-scheduled operations on air transportation generally.

Thus, for the last six years an operator has been free to carry on certain kinds of air transportation service without interference or regulation, making what charges and offering whatever service he wished so long as his planes were airworthy and his pilots competent.

The picture has changed radically since that time, however. In 1938, when non-scheduled operators were given an opportunity to apply for grandfather certificates under the Civil Aeronautics Act, only 29 responded. Action was suspended on those applications, but since that time the avalanche of applications has flooded the CAB.

These applications include requests for certificates by truck, bus and taxi companies, for moving vans, refrigerator cars and contemplating transportation of all types of special commodities.

What was once an easy distinction between the airline operator and fixed base operator has become clouded in a twilight zone. Even the question of jurisdiction has been raised in some instances, but the CAB holds that under the Civil Aeronautics Act, it has clear-cut control of the common carrier, regardless of the scope of his operations.

The definition of a common carrier is simply one who holds out his services to a reasonable bloc of the public. But this definition serves to raise a question as to the status of the contract carrier, whose services could be nation-wide, or even world-wide, yet operating only for the benefit of a single contractor.

If the question of jurisdiction over the contract carrier persists, the CAB's investigation could well result in a recommendation for legislation which would bring such a carrier within the bounds of control. The pending Lea bill makes such specific provision for the contract carrier.

The questions of how much economic

Canadian Planes Not for U. S.

Published reports in the United States that Canada has surplus planes for sale, including 16 Continental-powered Stinsons at \$700 each, have caused the War Assets Corp. of Montreal to point out that agreements between the Canadian and American governments prohibit sale of these planes to buyers in the U. S.

control and where to draw the line on the size of the operation are others which must be settled. It has been suggested by some sources that an operator with two planes or less remain exempt from economic regulation, but even that suggestion is frowned upon by the CAB.

Some sources say that there would be the temptation for a small operator to transfer ownership of any number of aircraft over two to other members of his family or other interested parties, thus taking advantage of a legal loophole to avoid economic regulation.

Organizations representing non-scheduled operators have taken a wary, but cooperative attitude toward the investigation. The NATA canvassed its membership with a comprehensive questionnaire in an attempt to prepare data on non-scheduled operations for presentation at the hearing.

NATA also has called for a separate section of the Civil Aeronautics Administration to deal with non-scheduled operations, and asked the CAB to broaden its policies "to include on an equal and equitable basis the problems of non-scheduled aviation on a parity with those encountered in scheduled air commerce."

Questionnaire Sent Out

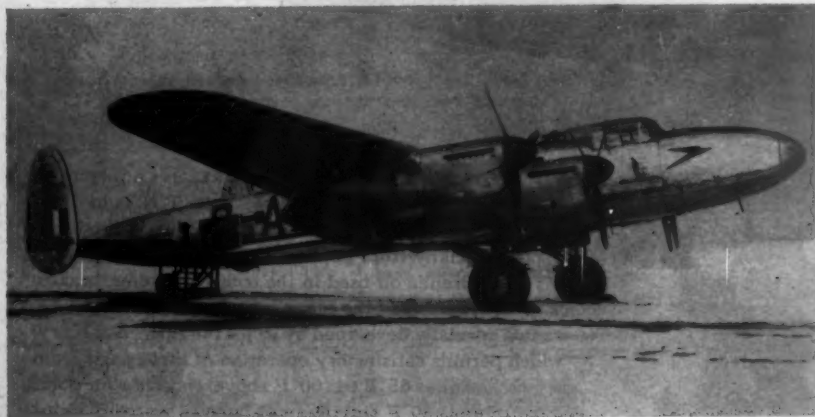
The CAB began to formulate a policy on non-scheduled regulations as early as 1941 through a questionnaire designed to determine primarily the nature and extent of non-scheduled civil aircraft use during 1940. A proposed follow-up campaign was disrupted by the war.

The questionnaire brought 4107 returns, about 8.5 percent of which were from charter operators. Of these, only 68 operators expressed a view on economic regulation with 10 opposed to any; 12 recommending limited regulation with some kind of official recognition of the charter operator, his aircraft, his personnel, maintenance equipment, and other facilities, and regulation of the charges for service; 34 others agreed as far as certification alone was concerned, and 12 others wanted regulation of charges only.

The rush to get under way with new non-scheduled operations, however, has changed the aspect of the CAB's exemption order, which was primarily designed to protect a then relatively few such operators.

One important aspect is the reluctance of capital to find its way into an industry which holds great promise, but operates under an exemption order which may be rescinded at any time. This has been particularly true of the contract operator.

The primary purpose of the investigation appears to be the same as that which motivated the questionnaire of 1941—to find out what should be the nature and extent of any permanent economic regulation, including the question of the basic need for regulation, if any.



Lancastrian-Britain's Latest Airliner—This civil version of the R.A.F. Lancaster bomber is to begin flights on the England-to-Australia mail and passenger route in the near future. Fully loaded, it has a top speed of 310 miles an hour, and a range of about 4000 miles. It carries a crew of five including captain, second pilot, navigator, radio operator and steward.

CAA Technical Development Division Busy on Many Tests

Impact-Resistant Windshield Program To Be Resumed Soon

THE Technical Development of the Civil Aeronautics Administration, working closely with the Air Transport Association in scheduling technical development projects on the basis of their urgency, announced that work of testing impact-resistant windshields, will be resumed this month and that limited funds for conducting the crash-resistant fuel tank program will become available in the near future.

In a detailed report to the Air Transport Association, D. M. Stuart, Chief of the CAA Technical Development Division, stated that aircraft fire testing facilities will be ready for use sometime in July. A special building which will house equipment for air blast testing is nearing completion in Indianapolis.

Development of instrumental panel illumination using retroreflective material for marking the instruments and other items in the cockpit is progressing slowly due to lack of available funds for expediting this work, Stuart stated. He added that the Reflexite Corp. in Norwalk, Conn. is continuing its efforts to develop a die for pressing spherical lenses on one surface of clear plastic sheet. Considerable work will be required to complete the development of a suitable die, to obtain a suitable type of plastic, to develop a technique for pressing the plastic and to develop a technique for applying the plastic to the instruments, Stuart said. He added that a DC-3 cockpit mock-up, incorporating instrument faces marked with the glass beaded material, is available for inspection in the Department of Commerce in Washington.

With reference to other phases of the development program, Stuart reported as follows:

"The development of aircraft position lighting is progressing. An oscillating-beam type illuminator has been procured, and both flight and laboratory tests of this unit will be conducted in the near future. The Grimes Manufacturing Co. of Urbana, Ohio, is undertaking the development of a low-cost, two-color, flashing tail-light unit which it is believed will prove suitable for either air-carrier or personal type aircraft.

"No funds are presently available for expediting the development of (a) the combined totalizer and fuel flow indicator, (b) the flight log recorder, (c) the angle of attack indicator, and (d) the use of punched card machines in the solution of vibration and flutter equations. However, the development of the angle of attack indicator is being undertaken by Thomas A. Edison, Inc., of West Orange, New Jersey, without CAA sponsorship.

"The development of the stress analyzer is progressing. The CAA has contracted with the General Electric Co. for this work. In this connection, the fabrication and testing of a single-channel, magnetic-wire recorder has provided information for the development of a four-channel recorder employing motion picture film.

Airport Executives Urge Rent Payments By Federal Agencies

While shying away from endorsing any particular bill, the American Association of Airport Executives, at a meeting held recently in St. Paul, passed a resolution urging Congress to give every consideration to the enactment of legislation for a National Airport Building program.

Several other resolutions were passed, one of which asked the Federal Government to set up an arrangement where it would pay for space occupied by Federal agencies at airports, and another asked that the Civil Aeronautics Administration, the Budget Bureau and Congress formulate a plan immediately for the continued operation of control towers by federal personnel with federal owned equipment.

Another resolution asked the Federal Government to release to public-owned airports surplus war materials such as snow removal equipment, mowing machines and radio equipment.

The Association's Board voted to establish a permanent panel of consultants to advise and assist the Association's members. Four of those named were: Dr. John H. Frederick, University of Texas, on education and business management; Charles S. Whitney, Milwaukee, consulting engineer; Weldon B. Wade, Federal Security Agency, Chicago, recreation; and Sen. Clyde C. Trager, Peoria, Ill., legal consultant.

The Board asked its secretary, Pat Moore, to communicate with the National Association of State Aviation Officials suggesting that all states certifying airport managers make such certifications reciprocal between states.

Request for Additional \$225,000 for Northeast Field Rejected by CAB

The Civil Aeronautics Board last fortnight advised Sen. Francis J. Meyers (D., Pa.) that it cannot recommend the approval of an additional \$225,000 which Philadelphia has indicated is needed to place the Northeast Philadelphia airport on a par with the city's municipal airport.

Refusal of the additional expenditure was contained in a letter from CAB Chairman L. Welch Pogue to Sen. Meyers. The money would have been expended from the President's emergency fund, and Pogue pointed out that \$214,000 of such funds already have been expended at the Northeast airport to place it in shape for scheduled airline operations.

Pogue said that the CAB "has been fully appreciative of the hardship which resulted from the suspension of scheduled airline service at the Philadelphia municipal airport in December 1943, and it has been most sympathetic with the desire of the city to have airline service restored."

Pogue said that he had been informed by the Administrator of the Civil Aeronautics Authority that temporary facilities suitable for airline operations have been installed at the Northeast airport, although these facilities "will not in all respects be comparable to those which were available at the municipal airport."

"In view of the previous representations to the President and the Administrator's statement that the temporary facilities now constructed will permit restoration of scheduled airline service, there does not appear to be sufficient basis upon which to ask for additional emergency funds."

"Breach of Faith"

The Maryland Highways Contractors Association, in a telegram to Governor O'Connor, has branded his proposal to divert road user revenues to pay for construction of airports as "a breach of faith," and declared it was neither necessary nor desirable to "go headlong into a program of construction of airports" at the expense of the state roads and users of the roads.



Projected Berkeley-Albany Airport—The \$20,000,000 Golden Gate International Airport, projected by the cities of

Berkeley and Albany, Calif., will look like this. Covering approximately 5 1/2 square miles of tidelands, the site would comprise 150,000,000 yards of fill. In its ultimate development, the airport would become a transportation terminus, servicing steamships and railroads in addition to air fleets.

AM

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Why Western Electric equipment leads the way!

1. Western Electric products are designed by Bell Telephone Laboratories—world's largest organization devoted exclusively to research and development in all phases of electrical communication.
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equipment leads the way!



As a result of intensified wartime research at Bell Telephone Laboratories, of improved manufacturing techniques and increased production facilities at Western Electric, many new things are now being produced which will have peacetime applications.

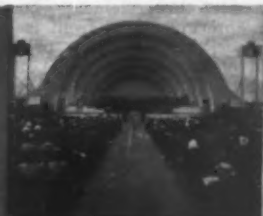
In the years of progress that lie ahead for radio, count on Western Electric to lead the way!



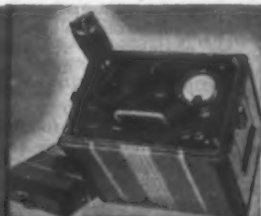
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knowledge in all of these fields

Jet Planes Require Only One-fifth Maintenance of Conventional Ships

THE ARMY'S P-59A Aircomet jet fighter requires only one-fifth the maintenance required with conventionally powered aircraft and can be serviced with one-fifth as many tools, according to information just released in "Air Force," the official service journal of the Army Air Forces.

The engines are held in place with only eleven bolts, and not very big ones at that. In the engine there are but two main bearings and one shaft. One AAF mechanic stated that he could pull a jet engine with an inexperienced crew in 35 minutes, and that four men could pull both engines and install new ones in a day, as against five days that would be required to do the same job on a conventional plane. All the equipment necessary for changing a jet engine, he said, can be carried in the plane, and consists of a small wing hoist and frame and a cradle to support the engine upon removal. The hoist is set up over an access door and a chain lowered to the engine lifting lug. Three engine mounts are unbolted, the connections unjointed, and the engine lowered straight down to the cradle. No work stands, cranes, large hoists or powered equipment are necessary.

Engine connections consist only of fuel line, oil line, tachometer and generator connections, and two thermocouple leads, one to the tailpipe and one to the main shaft bearing.

Mechanics don't need to let the plane cool off before beginning work on the engine either, since it is cool enough to take out by the time they get the cowling off. The article suggests that the simplicity of the jet engine will do away with much of the mechanical tinkering now performed on reciprocating engines, and that maintenance may be done in the factory, with ground crews merely removing worn-out units and replacing them with new ones.

The cooling system is a couple of oil jets which spray lubricant (standard hydraulic fluid 3580) and air into the two rotor shaft bearings. The excess runs down and forward into the accessory section from which it is returned by a small scavenge pump. A Cuno filter is used to clean the system.

The only accessories carried over from the conventional plane are generator, fuel pump and starter. There are only two spark plugs in the ignition system, located in the No. 4 and No. 8 combustion chambers, the other chambers being interconnected and igniting from these two. After starting, combustion continues without further assistance from the plugs and is as steady as the flame of an oil burner. The spark gap is considerably wider than with conventional engines, and plugs are reported to last just as long despite the intense heat of the jet.

Fueling of the plane involves no more than calling for the kerosene truck and filling up, except that the fuel is thoroughly filtered to safeguard the barometric fuel controls which serve the same purpose as the regulator on a turbo-supercharger. Gasoline and alcohol—even

brandy or hair tonic—can be used as well as kerosene. Fuel consumption at extremely high altitudes is half what it is at low altitudes and on a par with conventionally powered planes.

The engine and forward speed are controlled by the amount of fuel injected into the burners, controlled by a throttle in the cockpit. All flight instruments operate on pressure from the impeller rather than vacuum. The jet engine has about 10 percent as many moving parts as conventional engines, and there is no elaborate mixture control, prop control or icing worry.

Jet planes are now undergoing arctic tests in Alaska, probably concerning fuel viscosity and fuel problems, since kerosene does not act like gasoline at low temperatures.

Mariner Crews Now Trained Without Leaving Ground

An electrical mockup of the Mariner flying boat in which the entire crew is trained without leaving the ground was unveiled for the first time Jan. 14 at Patuxent, Md., Naval Base. The trainer was developed by Bell Telephone Laboratories at the request of the Bureau of Aeronautics, special devices division.

The trainer is actually an electrical computer, operated by the controls of the plane. Its answers are given on the various instruments so realistically that even experienced fliers can be given a work-out under such conditions as rough air, icing, and engine failure.

Pilots and Crews Given Liberalized Insurance By Equitable Company

Liberalization of rules for insuring pilots and crews has been put into effect by the Equitable Life Assurance Society.



Parkinson

The adoption of more liberal underwriting rules follows favorable claim experience with respect to air travel, according to Thomas I. Parkinson, president of Equitable.

The company now will insure pilots and crew members, both commercial and private, operating

within the United States, Southern Canada and Alaska, subject to the following extra premiums:

The rate per \$1000 insurance for commercial pilots on scheduled passenger travel service is \$5. The same rate prevails where the pilot is employed by an individual or an industrial corporation to fly privately owned planes in passenger service only for owner or company executive. Crop dusters and test pilots, except those testing new or experimental planes, will be insured for approximately \$15 per \$1000. Hostesses and other crew members of airlines will generally require the same rating as airline pilots.

Private pilots with total solo experience of from 100 to 399 hours and who fly from 25 to 149 hours annually receive a rate of \$7.50 per \$1000, while passenger pilots with 400 or more hours receive a rate of \$5 per \$1000.

Gas Turbines Point Way to Superspeed Of Postwar Transports

POSTWAR transports capable of crossing the continent in approximately four hours are today being predicted by aeronautical engineers if development of the gas turbine continues at its present pace. Currently used to power jet propelled aircraft, the gas turbine also can be used to drive a propeller, and one possibility now being advanced is a combination propeller and jet drive with the former being used at low speeds and low altitudes and then cut out at high speeds and high altitudes where the jet becomes more efficient.

Not only will the gas turbine permit greater power and far higher speeds than presentday reciprocating engines, but in addition it is lighter in weight, less complex to build, and has a minimum number of working parts to get out of order. Basically it consists of three elements—compressor, combustion chamber and turbine blades. Air entering at the front is compressed in the combustion chamber by the compressor, where further pressure is built up through the introduction and ignition of kerosene or some other fuel. These highly compressed gases then pass through the turbine blades acting in the same way that steam does in a conventional steam turbine.

Where jet propulsion is used, the actual drive is supplied by the reaction of the gases as they are discharged through a nozzle or jet at extremely high velocity, and the turbine serves only to power the compressor, while without jet the rotation of the turbine also serves to drive the propeller.

The principle limitation of the gas turbine at present is excessive fuel consumption, but this undoubtedly will be overcome by future metallurgical developments making possible turbine blades capable of withstanding much higher temperatures than those now being used, with a resultant increase in efficiency.

In addition to adding to the speed of postwar air transport, the gas turbine promises further advances in comfort and safety. Vibration and noise will be almost eliminated, and the possibilities of engine failure reduced.

OVER 450 LOCKHEEDS A MONTH FOR UNCLE SAM



P-38 LIGHTNING FIGHTER



B-17 BOEING FLYING FORTRESS



PV VENTURA PATROL BOMBER



C-69 CONSTELLATION TRANSPORT

One-hundred percent of Lockheed's production is for war! The swift P-38 Lightning fighter, the Navy's PV Ventura bomber, the famous Boeing Flying Fortress and the majestic Lockheed Constellation. Fighters, bombers, transports. Fast, hard-hitting dependable weapons of war—backed by the Lockheed tradition of leadership and the vast store of Lockheed skill and experience. ✧ One-hundred percent war production! This is Lockheed's record for January, 1945, and for every month as long as the need is for war planes. Then, and only then, will Lockheed return to its original purpose—building planes for commerce, industry and you.



LOOK TO LOCKHEED FOR LEADERSHIP

Lockheed Aircraft Corporation, Burbank, California

22 Aviation Leaders Receive IAS Honors

Twenty-two leaders in aeronautics were honored during the fortnight by the Institute of the Aeronautical Sciences. At the same time it was announced that gifts have been received which will enable the Institute to have buildings in Los Angeles, San Diego and New York when it is possible to begin construction.

The John Jeffries Award for outstanding contributions to the advancement of aero medicine through medical research, was presented to Air Marshall Sir Harold Whittingham, director general of the Medical Services of the Royal Air Force.

Honorary Fellowships, of which only two can be given in any one year, were conferred on Sir Frederick Handley Page, managing director of Handley Page, Ltd., and Edward Pearson Warner, vice chairman of the Civil Aeronautics Board.



Kelsey Phillips Weick

Awards giving recognition to outstanding achievements in aeronautics included:

Sylvanus Albert Reed Award, for a notable contribution to the aeronautical sciences, to Fred E. Weick, chief engineer of the Engineering & Research Corp., "for his contribution to the development of tricycle landing gear and the two control non-spinning plane."

Octave Chanute Award, to Col. Benjamin S. Kelsey, USAAF, "for his outstanding contributions to the development of high speed military aircraft and to the knowledge of the effects of compressibility through flight testing."

Robert M. Losey Award, to John Cary Bellamy, special consultant of the USAAF Weather Service, "in recognition of outstanding contributions to the science of meteorology as applied to aeronautics."

Lawrence Sperry Award, made each year for a notable contribution by a young man to the advancement of aeronautics, to William H. Phillips, head of the Stability and Control Flight Test Section, Langley Memorial Aeronautical Laboratory, National Advisory Committee for Aeronautics, "for outstanding contributions in the field of stability and control of aircraft."

The following members were honored with election to Fellowship in the Institute: John D. Ackerman, professor and head of Dept. of Aeronautical Engineering, University of Minnesota; Paul S. Baker, engineering manager, Chance Vought Aircraft Div., United Aircraft Corp.; Charles Froesch, chief engineer, Eastern Air Lines; Alexander Kartveli, vice president and chief engineer, Republic Aircraft Corp.; Otto E. Kirchner, chief engineer, American Airlines; Lt. Col. W. Randolph Lovelace, II, Medical Corps, Aero Medical Laboratory, Engineering Division, ATSC, USAAF; Erie Martin, engineering manager, Hamilton Standard Propellers Div., United Aircraft Corp.; Shattwell Ober, associate professor of aeronautical engineering, Massachusetts Institute of Technology; Leonard E.

New York Board of Trade Aviation Section Re-elects John F. Budd as Chairman

John F. Budd, aviation magazine editor, has been reelected chairman of the Aviation Section, New York Board of Trade. All other officers, including Daniel H. Ecker, of the New York Board of Trade, who is secretary-treasurer, and Christopher de Groot, U. S. sales executive for Pan American-Grace Airways, who is section representative on the directorate, have been renominated.

The following, who had been elected members of the executive board of the Aviation Section have been appointed Sub-Committee chairmen: W. L. Baker, Socony Vacuum Oil Co.; George F. Bauer, George F. Bauer Associates; George Boochever, attorney; Harry L. Gage, Mergenthaler Linotype Co.; Robert D. Merrill, International Tel. & Tel. Corp.; C. S. (Casey) Jones, Casey Jones School of Aeronautics, Inc.; Herbert J. Lyall, American Airlines; Paul Manheim, Lehman Bros.; Harold Jackson, Wm. H. McGee & Co., Inc.; Lyle C. Ray, Aviation Packaging Co.; Gordon C. Sleeper, Republic Aviation Corp.; J. E. Sitterley, J. E. Sitterley & Sons; Howard Welch, Sperry Gyroscope Co.; J. T. Wilson, International Business Machines Corp.; Chester M. Mayer, Air Express International Agency, Inc. and Charles E. Dougherty, Carter & Weekes Stevedoring Co., Inc.

Safety Regulations Issued

The Civil Aeronautics Administration's aircraft engineering and flight engineering and factory inspection divisions have issued two safety regulation releases, Nos. 169 and 170. The first deals with unconventional power plant arrangements for multi-engine aircraft, and the second with design of wood aircraft structures. Release No. 170 points out that the design study is now on general sale for 75 cents by the Superintendent of Documents, Government Printing Office, Washington.

Colorado Chairman Named

Harry Anholt has been appointed chairman of the Postwar Aviation Committee of Colorado by Gov. John C. Vivian. Anholt is NAA national councilor for Colorado.

Root, chief aerodynamicist, El Segundo Plant, Douglas Aircraft Co.; and Capt. Selden B. Spangler, Power Plant Design Section, Bureau of Aeronautics, Navy Department.

Honorary memberships in the Institute were conferred on: Brig. Gen. F. O. Carroll, chief, Engineering Division, Air Technical Service Command, USAAF; Maj. Gen. Clements McMullen, ATSC, USAAF; J. Laurence Pritchard, secretary, The Royal Aeronautical Society; Brig. Gen. Eugene E. Reinarts, commandant, School of Aviation Medicine, Randolph Field, USAAF; and C. G. Rossby, Director, Institute of Meteorology, University of Chicago.

The following new members were elected to the Institute's Council: Rex B. Beisel, general manager, Chance Vought Aircraft Div., United Aircraft Corp.; George W. Brady, chief engineer, Propeller Division, Curtiss-Wright Corp.; William K. Ebel, vice president engineering, Glenn L. Martin Co.; Sherman M. Fairchild, chairman of the board, Fairchild Engine & Airplane Corp.; and Elmer A. Sperry, Jr., vice president, Sperry Products, Inc.

Hump Flights Made On ½ Hour Schedule

Flights over the Hump now are being maintained on a half-hour schedule, day and night, according to Herbert O. Fisher, special pilot representative for Curtiss-Wright Corp., who has returned to this country after 10 months in the China-Burma-India and African theaters.

Based in Assam for six and a half months, Fisher not only worked kinks out of the C-46s, which make up 75 percent of the planes used by ATC on



Fisher

the Himalaya run, by actually flying them up and over the Hump, lugging an average gross load of 48,000 pounds or more, but he also regularly visited all the many ATC bases, conducting training programs for pilots and ground crews.

He made 21 round trips over the mountain ranges, many of them on days when the route was officially closed because of bad weather so that the worst icing and air turbulence conditions could be observed. He did not get to see the Hump itself until the fifth trip over. On several trips he took loads of guns, jeeps and ammunition into China, and then brought about 40 Chinese soldiers back to India to be trained for the Burma theatre.

On another trip he carried three B-29 engines and cargo for a gross load of 49,000 pounds, and flew on oxygen most of the way because of the high altitude at which he had to fly. He revealed that the C-46 Commandos are used almost exclusively to furnish B-29 Superfortress bases with oil and gas.

Fisher flew to upper Assam in a factory-fresh transport, the first C-46 to be equipped with the new type centrifugal pump designed to eliminate engine troubles caused by fuel vaporization.

The pilot related that on several occasions he also flew P-40 Warhawk fighters over the Hump.

Following his tour of duty in the CBI theatre, he was assigned to the North African Division of the Air Transport Command, making routine test checks on C-46's, and studying and correcting operational difficulties.

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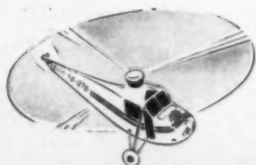


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CAB Examiner Asks Denial of Braniff's Mexican Petition

Applications of Braniff Airways and T. E. Braniff for approval of the acquisition of control of Aerovias Braniff S.A., a Mexican corporation, should be denied, CAB Examiner William F. Cusick recommended on Feb. 5.

"It is apparent that the Board's approval would in effect sanction a large network of foreign routes concerning which, as the evidence shows, much more should be known," the examiner said in his report. "That such approval would be violative of the joint policy statement of the Board and the State Dept. with respect to new international routes seems quite evident."

The report held that the evidence "clearly demonstrates that the transaction (acquisition) involves simply a route extension of Braniff Airways into the Latin American field of operations and should properly be brought under sections 401 and 801 of the Act."

"The temporary routes of Aerovias are proposed to be merged with Braniff Airways so as to set up a unified operation, tendering the same type of service, using the same kind of equipment, and operating through planes by interchange over the routes of both companies so as to connect and form one system."

"Accordingly, on the basis of the foregoing facts and considerations, it is concluded that the acquisition of control of Aerovias by Braniff will not be consistent with the public interest and it is recommended that the Board so find."

With respect to Mr. Braniff's acquisition of Aerovias Braniff, it was contended that the CAB has no jurisdiction to pass upon this question because Mr. Braniff did not control Braniff Airways. "However, on the basis of the facts hereinabove set out, a contrary conclusion has been reached. Accordingly, all of the considerations, with the exception of the possible harmful financial effect on the domestic carrier, leading to the conclusion that the acquisition by Braniff Airways should be denied, apply with equal vigor to the application of Mr. Braniff . . ."

Brake Release Developed

An emergency brake release valve developed at Southwest Airways' British Flying Training School near Phoenix, Ariz., makes it possible for an instructor to momentarily release the brakes in case of emergency, such as when a student applies brakes to an extreme degree and the plane is in danger of going over on its back. The device is constructed of bar aluminum alloy, and is drilled and tapped to hold two valves of the needle and seat type—one for each brake; a shaft which operates the valves through specially drilled holes, and a fitting for the return line from the release unit to the master brake cylinders. To release the brakes in an emergency, a lever in the rear cockpit is pulled, lifting the valves from their seats, and dissipating the pressure through the release unit until the valves are closed. Designed especially for AT-6's used at Falcon Field, the mechanism is adaptable to any plane with hydraulic brakes.

Senator Bailey Says CAB Will Not be Held Up on Foreign Routes

(See Editorial, "No Time to Lose," on Page 1)

Senator Josiah W. Bailey (D., N. C.), chairman of the Senate Commerce Committee, said Feb. 5 that he would not permit his committee to hinder government agencies in proceeding on matters of international aviation according to present law, thus ending for the time being a threat that a Senate report might recommend that the Civil Aeronautics Board refrain from making decisions on international routes until the Senate has fully considered foreign air policy.

A projected statement of policy, favoring a single international company, is now under consideration by the aviation subcommittee headed by Senator Bailey. The committee was to listen in executive session Feb. 7 to four government officials with possibility that the statement of policy might be made public subsequent to that date.

Senator Bailey announced that open public hearings would be started during February on all pending aviation bills.

Engineer-Writer Joins American Aviation Staff

Sydney Carter, 32, Yale trained in aeronautical engineering, a former private flyer, and with considerable experience in aviation writing, has joined the editorial staff of *American Aviation Publications*.

Carter will handle technical assignments, specializing on new planes, equipment, manufacturing, and the application of new aircraft and equipment to the various phases of the industry.

He came to *American Aviation* from the public relations staff of the Glenn L. Martin Co. where he concentrated on technical releases, and on military and commercial plane news. He is a native of New Hampshire, but has spent much of his life in New York and Baltimore.

B-29 Production Up

Production of B-29 Superfortresses increased 13% in January, WPB Chief J. A. Krug has announced. During January, the nation's aircraft factories turned out 6,535 planes of all types, including 2,397 bombers. Total production was 4% under schedule, due principally to deficits in three fighter and one light bomber plants.

Aviation Bills Receive Hearings and Head for Vote in Legislatures

Some action on aviation bills which have been introduced in most of the 41 legislatures that are scheduled to meet during 1945 is expected during February. The hearing stage on several of the more important bills is about over and definite legislative action may be looked for during the next few weeks.

Thus far no reports have been received as to completed action on any of the bills. In at least four states—Massachusetts, Missouri, Ohio and Texas—the Uniform State Air Carrier bill sponsored by the National Association of Railroad and Utilities Commissioners has been introduced. This bill would subject intrastate operations of interstate carriers to control of the utility commission or similar body where the state legislature makes such provisions.

While most of the bills relate to the creation of aviation commissions where states do not now have such commissions, and airport acts enabling states and their subdivisions to construct, maintain and operate airports, together with special acts relating to zoning for airports, a number of legislatures will consider either bills or amendments to existing acts dealing with the levying of taxes on aviation gasoline and the use that shall be made of funds derived from such source of income.



'Exploded' View of a Superfortress—This photograph, staged with the various sections of a B-29 mounted on dollies and suspended from cranes ready to 'fall' into position, illustrates graphically Boeing Airplane Company's multiline system of production in which major units of the giant bombers are brought together in the final assembly stages, each pre-completed. This makes final assembly a matter of joining and connecting. In the actual assembly procedure, these parts come together at various scheduled points along the production lines, rather than at once, as in the 'exploded' view.

Inventor of Air Mail Pickup System Enters Seeding Field

By ERIC BRAMLEY

A METHOD of sowing seed from the air which, it is claimed, will be an important aid in reforestation, revegetation, and the reclaiming of public and private lands, has been developed by Dr. Lytle S. Adams, inventor of the air mail pickup system.

Dr. Adams has revealed to American Aviation that he also plans to re-enter the air mail pickup field, using his original system on which he obtained patents in 1931. Other Adams patents were taken over by All American Aviation, and, after numerous changes, are in use today.

Two companies have been established, one to handle the seed business, and the other to organize the pickup business, Dr. Adams stated.

According to information gathered by Dr. Adams and his associates, there are some 750,000,000 acres of public lands, a good part of which is useless because of erosion, lack of seeding etc. The Department of Interior, for example, has stated that there are 130,000,000 acres under its jurisdiction that are in such condition "from past improper use or neglect" that some remedial action is necessary.

A bill (H.R. 1392) has been introduced in Congress by Rep. J. Hardin Peterson (D., Fla.), chairman of the House Public Lands Committee, to authorize an appropriation of \$2,000,000 "for the purpose of renewing and increasing forage and improving watershed conditions on range lands, forests or Indian lands, or other public owned and controlled land of the United States; authorizing the sowing operations by airplane, machinery, or other means" Money would be divided equally between the Agriculture and Interior Departments. In addition, the Department of Agriculture would receive \$500,000 to continue experiments. Indications are that the bill has the backing of both departments concerned.

International Seed Pellet Co. Inc. has been formed by Dr. Adams, with headquarters at 3490 Noell St., San Diego, Cal. This company, composed mostly of men who now are employed by Consolidated Vultee Aircraft Corp., intends to manufacture the seed pellets, install the necessary apparatus in planes, and do the actual seeding under contract with federal or state agencies, or private individuals.

The pellets are "manufactured" by use of a special machine. They consist of clay, fertilizer, rodent and insect repellent, and the seed. The machine turns out thousands a minute.

The cabin of the plane used for the seeding is shaped like a bin. Out of the bottom of the fuselage is a "rimless wheel" the spokes of which are $\frac{3}{4}$ by 16-inch tubes, leading outwardly and downwardly from a central pan. The pellets feed into this pan (the "hub" of the wheel) which rotates at 275 or more revolutions per minute, and are thrown out through the tubes by centrifugal force.

Dr. Adams claimed that a plane flying at 120 mph. and seeding over a width of 1000 ft., will cover 14,545 acres in an hour, using 633,600,000 pellets weighing 165 tons. Sowing is done immediately after a rainfall, so that the pellets sink into the ground instead of blowing away. Cost per acre of this seeding is "ridiculously low," Dr. Adams said.

Also Used for Dusting

In addition to seeding, it is said that the device can be used for dropping "bombs" for mosquito control, crop dusting, and similar activities.

Also formed by Dr. Adams is United Air Pickup and Delivery Systems Inc., 105 W. Spruce St., San Diego, which will contract with manufacturers to build the original Adams pickup system, and which will lease it to operators.

This original system is known as the "chute system." Ground apparatus consists of a chute, open at one end and narrowing down to a point at the closed end. It is 12 ft. high at the open end, and 11 ft. 2 in. at the closed end, measuring 14 ft. in length. Construction is of steel or fibre.

One steel cable, with an iron ball on the end, trails the incoming mail bag behind and below the plane as it approaches the open end of the chute. Release of this bag is automatic upon contact with the chute. The cable and ball then pass through a 2½-inch opening and pick up the outgoing bag which is located at the closed end of the chute. This bag is attached to a spring catapult which projects it into the air, making it possible to pick up heavy loads.

Despite the fact that the cable attached to the speeding plane passes



Cut shows the equipment used in the plane for dropping seed pellets. The pellets on right feed down into central pan and are thrown out below plane through tubes by centrifugal force. Motor which rotates tubes is shown above.

through a 2½-inch slot, Dr. Adams stated that there is no possibility of it becoming fouled and causing an accident. Hundreds of pickups were made at the Chicago World's Fair, from ships at sea, and in other places, without accident, he pointed out.

Principal drawback to this original system was the cost of the chute, each ground station running about \$900. Dr. Adams claimed that these chutes can now be constructed for a fraction of this figure, and further claimed that apparatus in the airplane will cost less than the system used by All American Aviation.

The pickup company has an authorized capital stock of \$505,000. Money to start the company was furnished by the men who started it—several employees of Consolidated Vultee, a Pittsburgh hotel operator, president of a private school in Los Angeles, and others.

The company will proceed with its plans, but probably will not be in full operation until personnel can be released from war jobs. Those now employed by Convair, for example, have worked on the pickup company idea at night and will go into it full time after the war, Dr. Adams explained. This does not necessarily mean that it is essentially a postwar project, however, because the company will proceed immediately to interest applicants for pickup routes in the apparatus, he added.

New ATSC Library Collection

The AAF's Technical Service Command, Wright Field, O., has announced formation of a new library collection on military aeronautics calling for public contributions of books, documents, articles, and other items of technical and historical interest in the field of military aviation. Persons interested in making contributions are advised to first contact the ATSC by letter, describing the documents before mailing them. Correspondence should be addressed to: Chief, Technical Data Laboratory, Air Technical Service Command, Attn: Chief, Reference Branch, TSEAL-6G, Wright Field, Dayton, O.

Britons Get Wings in Florida

Twenty-one RAF cadets were presented wings at the Riddle-McKay Aero College, Clewiston, Fla., Jan. 20. The presentation was made by Air Vice Marshal R. P. Willock, CB, deputy head of the RAF delegation to the British joint staff mission in Washington.



The original Adams chute pickup system as it was demonstrated in Washington 10 years ago. Plane approaches from right, drops bag in chute and picks up outgoing bag from attachment on extreme left. Note catapult which projects bag into the air. Present plan is to have smaller and less expensive chutes.

SNOGOS AT WILLOW RUN— TAKE THEIR JOB IN THEIR STRIDE!



SNOGO A SNOGO For EVERY BUDGET

AAF Using 78 Versions of B-24 Liberator; More Than 100 in Action at One Time

THERE ARE NOW at least 78 current versions of the B-24 Liberator in action with the Army Air Forces, and at one time there were more than 100, according to J. H. Famme, acting chief design engineer at the Consolidated-Vultee Aircraft Corp. San Diego Division, and former B-24 project engineer, who recently returned from a special assignment with the Eighth Air Force in England.

Most of these modifications are made in the field to meet special conditions, but they have resulted in added burdens for modification centers in this country—at Convair's Tucson center alone there are 12 separate projects—and as a result the AAF has taken steps to bring about more standardization, at least to the point of making the modifications at the point of use when possible.

As a step in this direction, a new nose section for the B-24, containing a chin turret which provides better visibility, is now being made up in kit form for the European Theatre of Operations. It will be substituted for the original nose turret which was designed for the Pacific. The new kit is a complete unit which requires only the cutting off of a section of fuselage and bolting into place, and can be installed in the theatre as needed.

Famme said that the B-24 was exceptionally easy to modify due to its stringer construction and the fact that drawn Z-sections rather than extrusions were used for stringers, but that while this made the plane adaptable, it also subjected it to stresses for which no provision had been made in the original design. By way of example, he pointed out that the original B-24 design called for a design gross of 43,000 pounds with 47,800 as an overload. The design gross was later increased to 56,000 and today the Liberators are taking off at over 60,000. Because of its roomy fuselage and bomb bay, the B-24 is particularly subject to overloading.

In the Eighth Air Force, for instance, a harness has been worked out permitting three 100 pound bombs to be carried on 16 of the 20 stations, increasing the bomb load from 2,000 to 5,200 pounds; yet there is a tendency to load in just as much gas as with the previous load.

Conserving gas for long missions is another problem that has imposed undue strain on the power plants. Pilots, for example, will use high manifold pressure and low rpm. to conserve fuel, totally overlooking the fact that this imposes a severe strain on the engine which may well result in failure. In an effort to solve this problem, the Eighth Air Force prepared a booklet on B-17 power settings for its pilots, and a similar booklet was prepared under Famme's direction for B-24 pilots. It was titled "Engine Failure and Your Post War Future" and gave simple rules for the care of engines and emergency procedures telling how to stretch gas without ruining engines.

Prior to the issuance of these booklets, Eighth Air Force operational research made a careful study of power settings, installing more than 150 cameras in B-17's to photograph the instrument panel and

pedestal at a rate of from 3 to 4 frames every 15 seconds.

Among the unusual missions the B-24's have been called on to perform, Famme revealed, were the supplying of American forces in France when our advance ran ahead of plans. On this duty the B-24's carried 12,000 pounds per airplane of anything from ammunition to K rations. Some planes were rigged up as tankers and brought in 2,000 gallons of gas per trip in auxiliary and bomb bay tanks for use by armored ground forces.

Another special version Liberator was known as the carpathbagger. It had boxes for leaflets in its bomb bays and was used to carry arms and ammunition to the underground behind the lines at night.

The project for which Famme was called to England was a special project concerning design changes, combat modifications, and mechanical failures. It traced back to the basic design of the airplane, and has now been concluded with the basic difficulties fairly well ironed out as far as the Eighth and Fifteenth Air Forces are concerned.

Martin Making B-24s Into Flying Tankers

Liberator B-24 bombers are now being modified into C-109 Flying Tankers at the Glenn L. Martin Co., Baltimore. The modification consists of stripping all equipment from the interior of the B-24 fuselage, and installing giant collapsible marenge fuel cells. The marenge cell was developed by the Martin Co. and takes its name from Martin Engineering. It consists of a collapsible fuel container or bladder of synthetic rubber or other gasoline resistant material which is slightly larger than and receives its support from the enclosure in which it is installed—in this case the sides of the fuselage. It is also the basis of most self-sealing gasoline tanks.

The first C-109's were modified by the Army Air Forces and are being used to supply fuel to B-29 Superfortress bases in China. This early modification was reportedly capable of carrying several thousand gallons of gasoline, with its tanks so connected that it could draw on the total gasoline cargo for its own use during flight. Defueling apparatus could pump out 2900 gallons an hour. No details are as yet available on the Martin modification, but it reportedly includes several new features.

New Lens Penetrates Haze

A new glass lens developed by Dr. E. D. Tillyer, research director for the American Optical Co., which enables pilots to see haze-covered targets has been adopted by the Army Air Forces. The new lens removes blinding glare and invisible light rays, and absorbs scattered blue light characteristic of haze.

Aviation Recognized In Many Colleges as Laboratory Science

NINETY-SIX per cent of the colleges and universities in the United States recognize aeronautics as a laboratory science, while aviation education in the high schools is divided into three kinds of activities—infusion of aviation material into all subjects of the regular curriculum for enriching those subjects, aviation-centered industrial arts and vocational courses; and military pre-induction courses, which are scientific but of a temporary nature. These observations are made by Paul E. Elicker, executive secretary of the National Association of Secondary-School Principals in a special aviation education issue of the association's bulletin.

Elicker has made a state-by-state round-up of aviation education, revealing that in Alabama 59 high schools offered regular classes in aeronautics during the past school year, 29 in Arkansas, while 194 California high schools offered aero courses and, in addition 32 schools had classes in aircraft maintenance.

In Connecticut, 70 of the 99 senior high schools taught aero science, an increase over the previous year, but classes were smaller. All high schools in the District of Columbia offered aero courses, and there were also vocational aviation courses in mechanics.

Florida's State Department of Education reports that "it is possible for schools to offer credit for work in aviation education," and that three Florida counties are now granting one and one-half units of credit for not less than 288 hours of aviation instruction outlined by the Civil Air Patrol. One hundred-and-thirty Kansas high schools offered air courses during the year, and, despite serious shortages of teachers, 91 Maine schools conducted similar classes.

In Massachusetts, 204 of the 259 high schools and a high percentage of independent preparatory schools participated in aviation education, as did all of the high schools in Minnesota, 13 of which started a program of glider building. Sixty Mississippi high schools and 114 in Missouri offered air courses.

In Montana, 54 high schools reported activity, a decline of 19, and in Nebraska 150 held classes. In New Hampshire, 40 high schools offered courses as against 43 the previous year, and in New Jersey the number was increased from 94 to 95.

Fifty-one North Dakota high schools taught aviation during the year, despite a "serious scarcity" of teachers, and 425 Pennsylvania high schools participated. Texas "has been one of the leading states in aviation education," enrolling an estimated 12,000 high school students in 1942-43, the last year for which statistics are available.

In Vermont, "nearly every high school" offers courses and, in addition, aviation education is spurred through a fund set up by Col. and Mrs. Robert K. Haas, in memory of their son who was killed in the war. In the State of Washington, "more than half" of the high schools offered air courses during the past year, and, in West Virginia, a total of 68.

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Army Helicopter—

The Platt-LePage XR-1A and XR-1, shown here during test flights at Wright Field and at Eddystone, Pa., are the Army's first twin-rotor rotary wing aircraft. Classified as two-seated observation helicopters, they have a weight empty of more than 3000 pounds, a gross weight of more than 4500 pounds, and are powered by a single Pratt & Whitney R-985 engine which drives both rotors. They have a speed of approximately 120 miles per hour, and can go to an altitude of more than 15,000 feet, according to Army reports. Equipment includes radio command sets with duplicate controls for the pilot and observer. The principal difference between the XR-1 and the XR-1A is in cockpit enclosure design, with added plexiglas sections providing better visibility in the latter. The picture, upper left, shows the XR-1A in flight. Army and Platt-LePage officials, upper right, inspect the new aircraft. Left to right: M. Lankowsky, Air Technical Service Command, Col. H. F. Gregory, Army Air Forces, George H. Miller, Platt-LePage test pilot, W. L. LePage, president, and E. E. Denniston, assistant to LePage. The XR-1A leaves the ground, center right, at Wright Field. The XR-1 (note the different cockpit enclosure) hovers, lower right, above the airport at Eddystone, Pa., home of the Platt-LePage Aircraft Co.



Stahl, Ewing Get Places With Riddle in Brazil

Edwin P. Stahl, general manager of J. P. Riddle Co., Miami, Fla., has been named executive vice president of the company. He is now in Sao Paulo, Brazil, reviewing instructor needs of Escola Tecnica de Aviacao. Robert C. Ewing, for the past three years associated with the Air Traffic Control Division of the Civil Aeronautics Administration in Jacksonville, Miami, and Atlanta, has gone to Sao Paulo as a Riddle instructor. Ewing was at one time in the regulations department of United Air Lines.

Hotel Goes to War

Dinners and balls are giving way to aircraft production at the Maryland Hotel in San Diego, the ball room and dining room of which have just been taken over by Ryan Aeronautical Co. as part of its expansion for its new Navy fighter plane contracts. The ball room was taken over by the purchasing department Jan. 12, and the plane material control department moved into the dining room on the following day.

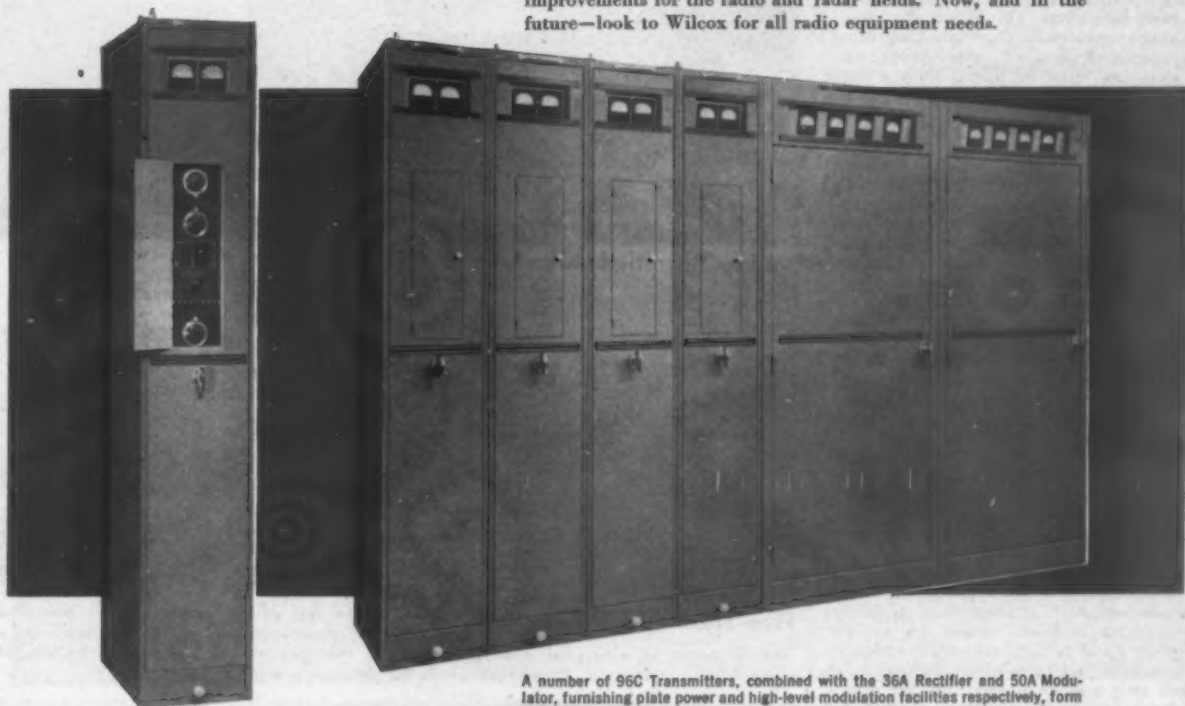
Air Derby Officers Chosen

Noble C. Schilt has been re-elected president of the Washington Air Derby Association. Other officers, all re-elected, are: Herbert H. Gookins, vice president; Johanna Busse, treasurer; M. Lillian Prinz, secretary. Directors, all of whom were also re-elected, include: S. J. Butler, Helen Frigo, Dorothy Waggy, George Kalec, Harry Manuel, Clarence Bruce, Mary Benson, C. H. Warrington, T. D. Schall, T. J. Waggy, Dudley T. King, George Roberti, J. H. Prinz, and J. J. Schmitt.

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... IN RADIO COMMUNICATIONS EQUIPMENT

For many years, the quality of Wilcox communications apparatus has been relied upon by broadcasting stations, commercial airlines and governmental agencies. Throughout the United States and over the world flight schedules have been accurately and safely maintained through use of Wilcox ground and aircraft transmitters, receivers and control equipment. From the urgency and new demands of war have been developed many Wilcox improvements for the radio and radar fields. Now, and in the future—look to Wilcox for all radio equipment needs.



Engineered to the needs of those services requiring reliable radio communications, the Wilcox Electric Company 96C equipment represents an advanced stage of design in the field of medium frequency, medium power transmitters. Each unit is a complete, fixed-frequency 2.5 KW RF transmitter, for either telegraph or telephone operation in the range of 2-20 MC.

A number of 96C Transmitters, combined with the 36A Rectifier and 50A Modulator, furnishing plate power and high-level modulation facilities respectively, form a flexible, multi-frequency station for either simultaneous transmission on a number of frequencies, or the selection of an individual frequency best suited to the particular communication problem. The use of an individual channel for each frequency avoids the complications of frequency shifting mechanisms.



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Design Standards for Aircraft Electric Control Devices Urged

DESIGN STANDARDS for aircraft devices are an imperative need, F. W. Hottenroth of General Electric's Industrial Control Division told members of the American Institute of Electrical Engineers at their winter technical meeting in New York. He proposed that standards covering aircraft control equipment should be established by AIEE, and that 50,000-foot ceilings be adopted as standard for designing purposes. He added that the greatest effect of altitude on electric control devices is upon the electrical rating of their contacts, due to the increased difficulty of extinguishing an arc at the low pressures encountered at high altitudes.

Turning to temperatures, he pointed out that aircraft require designing for a total range of 265 degrees, from -65 F to 200 F, and stressed the importance of proper choice of materials for correct operation over this wide range.

Hottenroth also listed three major considerations in designing devices for satisfactory operation in corrosive atmosphere and high humidity: (1) When dissimilar metals are used close together, they must be properly chosen; (2) steel parts, unless stainless, must be plated with a corrosion-resisting plating; and (3) care must be exercised in the use of molded parts wherever dimensional stability is essential.

Discusses Ignition Cables

Results of an investigation of the failure of aircraft ignition cables and connectors at high altitudes, along with several means by which the life of the ignition system may be extended appreciably, were presented by H. H. Race, research engineer at General Electric, Schenectady, and A. M. Ross, Jr., chemist at General Electric, Bridgeport. They said the tests demonstrated the superiority of neoprene-sheathed over lacquer-braid cables, and attributed this (1) to the elimination of the cotton braid; (2) the inherent heat and ozone resistance of neoprene; and (3) the construction of the neoprene-sheathed cable which is better suited to proper sealing of the spark plug well, a necessity revealed by the tests.

They also described an improved terminal construction for five millimeter cables in which neoprene adapter boot, grommet, and mycalex terminal sleeve are molded integrally, and which materially reduces the number of arc-over failures. A copper ring washer molded into the grommet provides good electrical contact for radio shielding and relieves the neoprene of abuse caused by cycling of temperature or inspection and servicing.

L. A. Zahorsky, General Electric fractional-horsepower Motor Engineering Division, presented a paper devoted to the amplidyne generator for speed-controlled electric gun turrets. C. P. Hayes and L. L. Ray of the same division outlined some of the problems on the design of suitable inverters for 400-cycle aircraft electrical systems and offered suggestions for improvement by careful coordination among designers of planes, auxiliary equipment and auxiliary power supplies. They displayed a widely used inverter of the motor alternator type and pointed out

that addition of frequency control with a suitable driving motor would make the device conform to future requirements, although they conceded that for future applications on aircraft with a-c power supplies, it may still be necessary to isolate "fussy" loads from the main system.

V. M. Montsinger of the General Electric Transformer Engineering Division presented a method of calculating the effect of altitude on temperature rise of various designs of aircraft transformers.

Ralph P. Bell Honored

An illuminated scroll signed by personnel directors in Canadian Aircraft plants has been presented to Ralph P. Bell in recognition of his more than four years' service as Director-General of Aircraft Production. During his tenure, production of Canadian aircraft rose from 54 planes in 1939 to 7,133 in 1944.

Chamber Issues Annual Report

The Aeronautical Chamber of Commerce has issued its annual report for the fiscal year ending Oct. 31, 1944. The 42-page report contains detailed summaries of all Chamber activities including the newly formed Aircraft Manufacturers Council and Personal Aircraft Council. A preliminary budget breakdown shows that the Chamber will spend 28.9 percent of each dollar in 1945 on Information to the Public, 12.7 percent on Readjustment and Research Services, 11 percent on Technical and Traffic Service, and 8.7 percent on Industrial Relations Research.

Well, Well, Well!

Closed down for nearly 24 hours last month because of a water shortage, Curtiss-Columbus has started drilling its own water wells in a move to forestall any recurrence of this situation. Two permanent wells are planned, which will be connected to the city line now entering the plant, but in such a way as to make them entirely independent of city water supplies.



Double Barrelled Attack—Carbon dioxide and foam discharges from the new Cardox fire truck at the Detroit City Airport as it moves in to the attack on a demonstration fire involving 300 gallons of contaminated gasoline and 100 gallons of oil. Note the flames.



Five Seconds Later—The flames seen in the last picture are completely blanketed by a cloud of carbon dioxide gas which is discharged from a special nozzle at a rate of approximately 4,000 feet per minute, cutting off the oxygen without which the fire can't burn.



Completely Under Control—Twenty-five seconds after the fire fighters began their attack, all fire has been extinguished while foam lines and guns and CO₂ hand lines continue to blanket the area. This is the first truck of its kind to be used by any civilian airport in the world.

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—a story of progress for over a quarter century

In 1919 an instrument for measuring the rate of climb or descent of an aircraft was mounted on the panel of a U. S. Navy experimental plane at the Naval Aircraft Factory in Philadelphia. This early "thermos bottle-and-case" was Pioneer's—and the world's—first Rate-of-Climb Indicator, Type 132.

Today the Pioneer Type 1636 Rate-of-Climb Indicator,

sensitively compensated for temperature and altitude changes, is specified as standard equipment for thousands of aircraft panels throughout the world.

This record of progress in blind-flying and instrument-approach aviation is another example of Pioneer creative engineering, ceaselessly striving for maximum reliability, accuracy, and sensitivity.

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New rubber joint seals

B. F. Goodrich **FLEXLOCK COUPLING**

VIBRATION-PROOF! . . . LEAK-PROOF! . . . INSTALLS IN SECONDS!

PROVED FOR YEARS on industrial piping applications, B. F. Goodrich Flexlock couplings are now being adapted to many aircraft uses. They are effective as seals or flexible joints, and are ideal for uses where vibration is a problem.

The Flexlock coupling is a molded rubber gasket specially ribbed inside and out. Coupling is placed in the larger diameter pipe and the smaller pipe forced inside the coupling. Compression causes the ribs to grip both pipes securely. The result of the gripping and sealing action of the inner and outer sets of ribs is a tight joint.

Flexlock couplings have five outstanding advantages: (1) *Quick application*—takes only few seconds; (2) *Low cost*—time saved and low cost of seal itself make Flexlock cheapest method in many cases; (3) *Adaptable*—adapts itself to rough surfaces; (4) *Leak-proof*—constant pressure is exerted on all surfaces touched by seal; (5) *Positive flexible coupling*—vibration won't loosen Flexlock.

B. F. Goodrich Flexlock couplings can be made of natural or synthetic rubber, depending on use. Rubber can be compounded with resistance to aromatics, hot and cold gases, and

liquids such as commercial acids, alcohol, water, gasoline and oil.

Flexlock couplings are available now for experimental uses, some of which are described below. Our engineers will be glad to work on applications with you. Write to The B. F. Goodrich Co., Dept. C2, Aeronautical Division, Akron, O.

• SUGGESTED USE of Flexlock in fuel system to show how it might be applied. Cutaway section shows how ribs grip both pipes securely. Other possible applications—high pressure grommet seals for passing conduits through pressure chamber bulkheads, etc.; flexible joints in bell and spinet tubing carrying gases and liquids.



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LANDING WHEEL TIRES • TAIL WHEEL TIRES
DE-ICERS • BULLET-SEALING FUEL CELLS
BLADDER-TYPE FUEL CELLS • MOLDED PARTS
EXTRUSIONS • VIBRATION DAMPERS • HOSE

airplane plumbing lines



• FAST INSTALLATION is big Flexlock feature. All you do is push coupling inside larger diameter pipe.



• ... then just push smaller diameter pipe inside the larger one to complete joint.

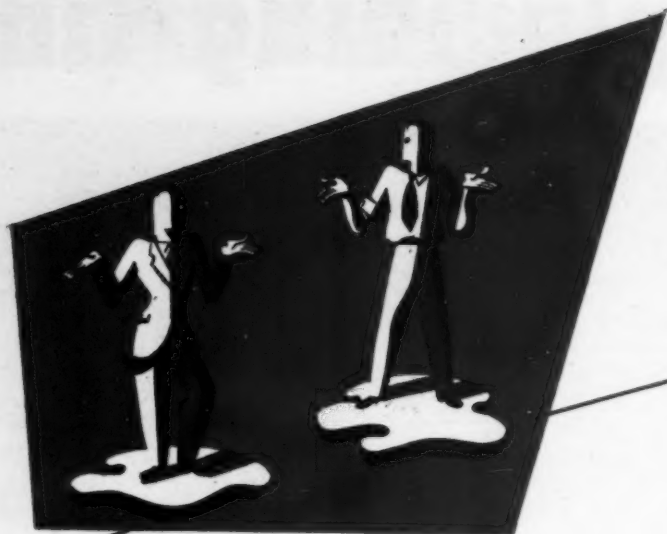


• Joint takes terrific direct pull but can be separated by twisting, unscrewing action.

Skyway or Highway

B.F. Goodrich

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Our engineers don't understand each other

We keep our engineers separated by 2500 miles. And for good reason. One group consists of hot shots on hydraulics, the other on electronics. They don't even speak the same language. Several thousand employees are separated for approximately the same reason.

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Domestic Airline Planes Total 355, Four Short of Peak in Use in 1941

NEW TRANSPORT plane allocations by the Surplus Property Board since Jan. 9 have brought the total of the U. S. domestic airline fleet to 355, just four short of the peak of 359 planes which were in use in 1941.

In the allocations of Jan. 10 and Jan. 27, the domestic airlines received eight more Douglas DC-3s, bringing the total planes available for transport operations to 355. Under these assignments, TWA and American each received two, and Mid-Continent, United, Northwest, and Chicago and Southern each one. Alaska Airlines and Hawaiian Airlines each received one Douglas DC-3.

Other allocations included the following DC-3s to American flag carriers: Pan American, 2; and Pan American-Grace Airways, Inc., one; and Zimmerly Air Transport Co., of Lewiston, Ida., and Nevada-Pacific Airways, of Lovelock, Nev.—intrastate operators—each received one Lockheed Lodestar.

Twelve transport planes—six DC-3s and six Lodestars—were allocated to foreign operators as follows: DC-3s, KLM (Dutch), 3; Aerovias Braniff, S.A. (Mexico), 2; and Aerovias Nacionales de Colombia (Colombia), one; Lodestars, Navegacao Aerea Brasileira (Brazil), two; Fauzi El Hose (Republic of Lebanon), 3 and Canadian Pacific Airlines (Canada), one.

Two Lockheed 12's (executive type planes) were allocated, one to the Pure Oil Co. and one to Panair do Brasil (Brazil).

UAL to Train at Douglas

Tentative plans have been formulated by United Air Lines to send key men including chief mechanics, crew chiefs, lead mechanics and others from each station on its system to one of the Douglas plants for a 30-day familiarization course in the DC-4 and the DC-6. The course would include lecture classes and tours of the plant. The supervisors so trained would then return to their own stations and train their own people.

Aerovias Braniff Allocated Two Douglas DC-3 Planes

Aerovias Braniff, S. A., Mexican subsidiary of Braniff Airways, has been allocated two Douglas DC-3 transport planes by the Surplus Property Board. T. E. Braniff, president, stated that the planes would be reconverted from military to civilian passenger use in Braniff shops and that because of the difficulty in getting delivery of parts from factories, two or three months might be required before they can be put in use.

Aerovias Braniff, in anticipation of the receipt of the aircraft, began the training of Mexican flight and mechanical personnel at the Braniff Dallas base last July. Some of the pilots have completed training and are now available for immediate service. Ground personnel, radio operators, and communications personnel have been training in Aerovias Braniff's communications center in the International Building, Mexico City, as well as at the Dallas base. The company's radio station at Mexico City has been completed and is now in service.

Aerovias Braniff has permits from the Mexican government to operate 7,728 miles of routes, including domestic and foreign service to Los Angeles and Miami in the U. S., Havana, Cuba and through the capitals of Central American countries as far south as Panama.

25-Passenger DC-3s In Use

Transcontinental and Western Air has put into service two DC-3s of 25-passenger seating capacity. The two planes, originally designed for sleeper service, were returned recently by the Army. They have the same size cabin as the 24-passenger type, but have two sections forward holding four passengers each in divan type seats which face each other. This provides enough room to install another single seat in the rear of the cabin.

P. M. Willcox Leaves United To Become Vice President of Fred. Olsen Line Agency

P. M. Willcox, Vice President-Administrative of United Air Lines, has resigned to become vice president of Fred. Olsen Line Agency, Ltd., with offices at headquarters of the company in New York.



Willcox

The Olsen Agency is the United States representative of Fred. Olsen & Co., a Norwegian concern which operates a fleet of cargo vessels and is the operating manager of the Norwegian Airlines. The airline is expected to resume most of its former services in Europe after the liberation of Norway and apply for permission to inaugurate air service to North and South America.

Willcox will leave United March 1, and will take over his new duties March 15.

Expects Feeder Planes Will Be Exposed To Take-Off, Landing Abuses

Writing in a recent issue of *The Air Line Pilot*, T. G. Linnert of the Air Line Pilots Association engineering department suggests that certain factors are being overlooked in planning feeder types. Pointing out that the feeder plane will probably be contacting five airports to every one contacted by the average airliner of today, he states that the feeder plane will be exposed to approximately five times the abuse of take-off power on the engine, five times the punishment of landings, five times the wear on landing gear retracting mechanisms, five times the use of flight and engine controls, and subjected to severe air bumps throughout the operational period of its lifetime because of the low altitudes at which it will operate.

Commenting on the points raised by Linnert, Don SeEVERS, executive director of the Feeder Airline Association, says they were carefully considered by the FAA in preparing its specification for a feeder type, and points to the fact that the published specification called for a sturdier design, rugged brakes and landing gear and maneuverability at speeds of below 80 mph.

However, he adds that there are some compensatory points on the side of the feeder plane. It does not, for example have to climb to 10,000 feet. It doesn't go as far, so does not have to put up with the strain of as much continuous operation. It will make more landings, but they will be at lower speeds because of the nature of the airplane, and many will be on turf with less resultant strain and wear on the landing gear.

In summary, he says that the feeder airplane is not just a small airliner, but a ship specifically designed for the work for which it will be used.



Continental's First DC-3—This is Continental Air Lines' first Douglas DC-3. Hereafter, CAL has used Lockheed Lodestars exclusively. The plane, allocated to the airline by the Army, was completely overhauled and refitted in the company's Denver shops—a job requiring 15,000 man hours. Two other DC-3s have been released to Continental by the Army.

Essair Decision Upheld But CAB Hearing on Marshall Status Asked

Houston-Amarillo Route Expected to Be Started March 1

THE CIVIL AERONAUTICS Board's decision granting Essair, Inc., a certificate of temporary authority to engage in air transportation between Houston and Amarillo, Tex., was upheld last fortnight by the U. S. Circuit Court of Appeals in Washington.

The court recommended, however, that the CAB should hold a hearing to determine the status of S. W. Marshall, former Essair president and now a member of the company's board of directors.

At the time the appeal of the decision was made to the Court by Braniff Airways, Marshall was serving overseas as a major in the AAF, and as conceded in the CAB brief, was no longer available to Essair. Marshall has since resumed his activity in the company.

Marshall's status was a point in connection with proving Essair's fitness, willingness and ability to operate the proposed route, and the Court held that "since there is no evidence that Essair, without Marshall, has a proper organizational basis, we think that in denying the motion for rehearing without opinion the Board abused its discretion."

In its petition asking the court to set aside the CAB order authorizing Essair to operate routes in Texas on a temporary certificate, Braniff assigned 12 points of error.

Braniff attacked the CAB's decision on the grounds that Essair had not met the test of fitness and ability to operate the airline, holding that the Board's decision as to these points was based on testimony taken in 1940 and that the record was devoid of proof touching on this phase of the company's qualifications.

The court's opinion held that the evidence which supported the CAB's finding that Essair had made a sufficient showing to entitle it to a temporary certificate for an experimental period of three years, when made, was substantial.

Braniff also claimed in its petition of appeal that certification of Essair would divert traffic from Braniff's routes. Essair was permitted to intervene in the court proceedings on this point.

The court denied Essair's contention that Braniff's petition for review of the CAB's decision was filed late—that it was not filed within 60 days after entry of the Board's final order in the route case.

The court held that it found no merit in Braniff's contentions that Essair did not properly apply for a temporary certificate and that the CAB has no power to issue temporary certificates for experimental purposes.

Essair was granted a certificate effective until Dec. 31, 1946, but has not yet begun operations. The company recently announced that it proposed to begin scheduled operations March 1 with two Lockheed Electras which are being re-converted for passenger use.

The decision left the CAB with a virtually perfect record in court tests of its decisions. This was the second appeal which had been taken to the U. S. Circuit Court of Appeals in a contest of a CAB decision involving new route certificates.

In the first such appeal, Pan American Airways petitioned the court in connection with the Board's decision granting a temporary certificate to American Export Airlines. The court generally upheld the Board's decision.

Essair is the first domestic company to be certificated outside of the grandfather clause of the Civil Aeronautics Act of 1938. It operated an air transport route in Texas several months in 1939 and in March of that year applied for a permanent certificate.

Due to delays in procedures, Essair's then counsel is alleged to have withdrawn an application for a temporary certificate without authority of the company's officers. It is said that the action was taken with the belief that the delay in the Board's decision would have warranted the granting of a permanent certificate if any kind was to be given.

With the outbreak of the war, the CAB froze action on all certificate procedures, and when route procedures were again instituted, Essair's new counsel petitioned for immediate decision notwithstanding the CAB's plans for an overall study of the local-feeder-pickup situation.

This petition was granted and Dec. 8, 1943, the CAB awarded Essair the temporary certificate.

Webber to Leave Delta To Manage Large Ranch

Stanley Webber, assistant to the vice president and general manager of Delta



Webber

Air Lines, will leave the airline April 1 to take up ranching in Colorado. One of the best liked and ablest traffic men of the industry, Webber has decided to retire from the transportation field to a large ranch he has purchased six miles from Fort Collins, Colo.

Webber purchased his ranch last summer. He has two sons, both of whom want to be stockmen. He plans to operate the ranch on a business basis and to make his home permanently in Colorado. An engineer by profession, Webber lived abroad for many years. He is a longtime friend of C. E. Woolman, vice president and general manager of Delta whom he met years ago in Peru. At Delta he has been in charge of traffic as well as being assistant to Woolman.

Northeast Gets Certificate For Mayflower Route Linking Boston and Nantucket, Mass.

The CAB has issued Northeast Airlines a permanent certificate of convenience and necessity for the Mayflower Airlines route between Boston and Nantucket, Mass., and has approved the purchase and merger of properties of the two airlines under Northeast's control. The CAB had approved the acquisition Aug. 7.

The certificate was made effective Jan. 5, but service over the route will not be inaugurated until the CAB notifies Northeast that the national defense no longer requires a delay in the inauguration of such service. The Mayflower route will be known as Route 70, the first time the CAB has designated a non-mail route by number.

The certificate issued Northeast provides only for the transportation of persons and property, but the airline has applied for mail pay. Northeast also has an application on file for the consolidation of the Mayflower route with its present Route 27.

La Guardia Express Record Set

A total of 699,357 air express shipments were handled at La Guardia Field in 1944, topping 1943's all time high by 25.9 percent. In weight totals, this volume set another record with an estimated 10,135,000 pounds forwarded and received at the field, as compared with about 8,111,000 pounds in 1943.

TWA Purchasing Office Moves

The purchasing department of Transcontinental and Western Air has been moved from the Municipal Airport to the New York Life Building, 20 West Ninth St., Kansas City 6.

Five Different Coast-to-Coast Fares Possible Under Proposed Reduced Tariffs

The recent proposed passenger fare reductions announced by American and United and the discount proposed by Transcontinental and Western Air hold the possibility of some headaches for the seller of transportation. At least five different coast-to-coast fares are possible under the proposed reduced tariffs.

The present basic fare between New York and San Francisco as quoted by the three transcontinental carriers is \$138.85.

By use of American's fare conversion table, reflecting a six and one-half percent fare reduction for the system, the fare would be \$129.80.

United's proposed 10 percent reduction would lower this figure to \$124.97, while the additional five percent discount to air travel card holders and Government travel would still lower the fare to \$118.02.

TWA's proposal to provide a five percent discount to holders of air travel cards would place its fare at \$131.81 for such travelers between New York and San Francisco. TWA's one-way fare for non-holders of travel fares would be at the present rate, \$138.85.

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machines to producing
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National Extension Favored In Brief by Public Counsel

Miami—New Orleans Local Service Permit Also Recommended

EXTENSION of National Airlines Route 39 from New Orleans to Miami, via Mobile, Ala., Pensacola, Tampa and West Palm Beach, was recommended by Public Counsel D. Franklin Kell and Linus H. Walker in a brief filed in the Civil Aeronautics Board's Florida case (Docket 489 et al). The recommendation carried with it a proviso that National may operate regularly scheduled non-stop service between any of the points.

The brief also recommended that National's application for Tallahassee-Tampa, Tallahassee-Orlando service should be denied, the latter without prejudice subject to the filing of an application for a certificate to provide service to Panama City, Valdosta, St. Augustine, Gainesville, Ocala and Leesburg-Tavares on a temporary basis only. It also was recommended by public counsel that the applications of Chicago and Southern Air Lines, Eastern Air Lines, Southern Airways, and Thomas E. Gordon be denied.

Two Benefits

In recommending that National refile its application for local-feeder service in Florida on a temporary basis, the brief said that the public was presented with two opportunities to benefit:

"First, National would have a sufficient number of small cities on its system to justify its continuing to provide adequate service, with the two-engine equipment it presently owns, to the smaller intermediate points now on its system; and second, the operation between these smaller cities with a fourteen passenger Lodestar aircraft on a temporary basis should, in time, provide the Board with ample knowledge of the feasibility of operation of a local or feeder service by an existing trunkline carrier."

This proposal was based on the supposition that National in the postwar period would utilize DC-4s for its trunkline operations, and that it could not use such aircraft to serve smaller cities.

"In our opinion," the brief states, "the addition of Panama City, Valdosta, St. Augustine, Gainesville, Ocala and Leesburg-Tavares to National's system would provide that carrier a sufficient number of smaller cities to justify and make feasible a service separate and distinct from its long-haul trunkline operations."

"On the other hand, if National is not authorized to serve some additional cities, it is quite possible that it will dispose of its Lodestar equipment and attempt to serve all of the certificated points on its system with DC-4 aircraft. And if this type of service is inaugurated, the smaller points . . . could expect, at most, a bare minimum of service."

"In the event National files an application requesting authorization to serve the points recommended . . . an ideal opportunity will be presented for the Board to authorize a so-called trunkline carrier to

operate a local or feeder service on a temporary experimental basis . . . It already has the tools with which the job can be performed, in the form of small planes, ground facilities at most of the points, and . . . personnel familiar with the problems that arise in connection with this type of operation."

The brief held that direct New Orleans-South Florida service was required, but recommended that C and S be denied on the grounds that for the carrier to establish the service would require a new terminal at Miami. In addition, the brief said, C and S' proposed service would result in diversion to Eastern and National.

Diversion Cited

National was recommended for the New Orleans-South Florida service over Eastern because it stood to suffer the greatest diversion, and that National's proposed service would constitute a cut-off connecting termini of an existing one-plane route, thus providing a more natural and logical development of National's system than Eastern.

The brief held that the service proposed by Gordon was not required since the majority of points to be served were of small population and "the contribution to passenger traffic by towns of this size cannot be expected to be very large unless unusual or peculiar circumstances are attendant, such as inaccessibility, unusual terrain, etc. Another consideration which compels us our conclusion is the fact that that most of the towns along Gordon's proposed routes are located so close together that development of only a negligible amount of local traffic can be expected."

In the case of Southern, the brief held that its proposed service is not required since it would duplicate "either directly or indirectly considerable route mileage of existing operations. And this unwarranted duplication is the sole basis for our position that the public convenience and necessity do not require this service."

Mail Pay Plea Denied

The Civil Aeronautics Board has denied the petition of American Airlines for modification or vacation of the Board's show cause order with respect to the carrier's mail pay. American had asked that the CAB vacate or modify the show cause order to reflect a passenger fare reduction of six and a half percent which the carrier proposes to inaugurate on or about March 1.

Joint Airlines, REA Committee on Cargo Being Planned by ATA

The Air Express Committee of the Air Transport Association decided at its recent meeting in Chicago to appoint a joint committee representing the airlines and Railway Express Agency to undertake a thorough study of air cargo possibilities.

The committee will be comprised of eight representatives of REA and six from the airlines. It will function as one of the Air Express Committee's regular subcommittees.

Two other committees were set up to discuss tariffs from an industry-wide standpoint and to work out a uniform system of handling paper work in connection with handling cargo and express. American Airlines, United Air Lines, Northwest Airlines and Transcontinental & Western Air have submitted suggested forms for study in this connection.

The committee discussed the CAB's recent order for an investigation of all airline property rates, but no official action was taken.

Harry Stringer, vice president-traffic of All American Aviation, was named chairman of the committee, and Guy Springer, Braniff Airways cargo manager, vice chairman. Among new members attending the committee meeting were R. E. Whitmer, recently appointed cargo manager of TWA, and Edward J. Ryan, superintendent of air mail and air express of Mid-Continent Airlines.



Learning 'Know-How' from TWA—A practical example of cooperation between United Nations fighting together in war and preparing together for peace is in evidence at Kansas City, where this group of Chinese nationals is learning from Transcontinental & Western Air how to build and operate a commercial transport airline to meet the peacetime needs of their country. The group was brought to the U. S. by TWA after negotiations with the Chinese government.

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FOR MORE THAN 45 YEARS THE GREATEST NAME IN TRUCKS

Airlines Will Need More Than 6,000 Pilots, 23,000 Men on Ground After War, Says CAA

NINETY per cent of postwar employment relating to the air will come within the field of industrial flying, and the airlines will need between 6000 and 8000 men as flight crews and 23,000 on the ground—three times the prewar number, the Civil Aeronautics Administration estimates.

In the field of private flying, the CAA says, manufacture of private planes will comprise the major portion of the postwar aviation industry. It is predicted that there will be 210,700 planes in the period 5 to 10 years after the war.

"Today, we have a 20 billion dollar annual aviation manufacturing industry. Some say we will be lucky to have 2 percent of that operating in peacetime. That would be a \$400,000,000 industry employing 50,000 persons. J. A. Krug, chairman of the WPB estimates 5 percent to 10 percent of today's industry will survive," says CAA.

Two important variables are present in the private flying picture. One is the helicopter, which is fast developing, and the other is an "entirely new kind of plane so useful that it will be manufactured in quantity and sold at a popular price." Neither it nor the helicopter is in sight today for the near future, CAA observes.

In answer to the question of who will buy planes for private use, here are the potential customers as outlined by CAA:

"Two and one-half million men now in the air forces, 300,000 of them pilots; 2,500,000 men and women now working in the aviation industry; several hundred thousand young men and women now at flying schools who have come of flying age since the war started, and only now are able to get instruction; 16,000,000 older men and women—40 to 50—daily reading about the ease of flying, new planes, the 'air age' etc.; several hundred thousand who learned to fly between 1927 and 1941, who have been unable financially to keep up, but who would buy an inexpensive plane."

The CAA's national airport plan is expected to produce 63,000 operational jobs and 125,500 jobs will result from the total of 6,305 fields. At an average large airport, used by transport services, 200 men are usually employed. At smaller airports, the estimate of jobs is 10 per field.

Within the CAA itself, the agency says that there is small possibility for postwar employment as a CAA pilot for several years, but that in the field of airway jobs, the prospects are somewhat brighter.

CAB Calendar

Feb. 26—Prehearing conference on Mississippi Valley applications.

Feb. 28—Oral argument in North Atlantic case. (Docket 853 et al).

Mar. 1—Hearing on non-scheduled investigation. (Docket 1501) (Tentative).

Mar. 5—Hearing on North Central case. (Docket 415 et al) (Tentative).

Mar. 12—Hearing on National Airlines rate case. (Docket 824) (Tentative).

Mar. 15—Hearing on Braniff Airways application to lift restrictions on Oklahoma cities. (Docket 1225) (Tentative).

Apr. 3—Prehearing conference on Mid Atlantic area applications.

Apr. 4—Prehearing conference on Boston-New York-Atlanta-New Orleans applications.

Apr. 23—Prehearing conference on Kansas City-Memphis-Florida applications.

Approval As Directors Of TACA Airways Agency Asked for Frye, Wilson

Transcontinental & Western Air has filed applications with the Civil Aeronautics Board seeking approval of interlocking relationships to permit Jack Frye, president, and T. B. Wilson, chairman of the board, to serve as directors of TACA Airways Agency. The applications also seek approval of Wilson to serve as a director of TACA Airways.

As explained in the applications, TACA Airways Agency is a wholly owned subsidiary of TACA Airways, the agency's business consisting primarily of acting in various representative capacities for the foreign airline, including maintenance and operation of ticket offices, maintenance and operation of ground facilities for servicing of aircraft flown on charter flights to Miami. The agency also is U.S. purchasing agent for TACA.

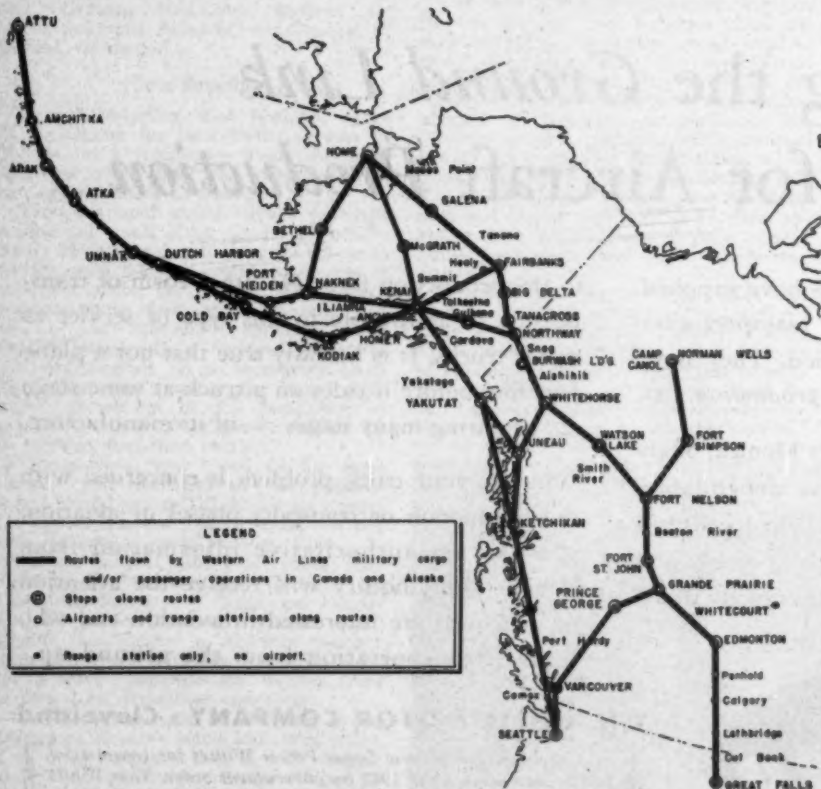
Frye is a director of TACA Airways, a corporation organized under the laws of the Republic of Panama. Wilson was elected to the TACA board of directors Dec. 11, and the application states that it is anticipated that he will likewise be named to the board of directors of the agency. Frye's salary as president of TWA was listed in the application as being \$30,000 annually, and that of Wilson's as board chairman at \$25,000 annually.

The application also states that TWA and TACA have entered into an agreement whereby TWA acts as the non-exclusive agent in the U. S. for the sale of transportation over the TACA system, and that TACA has agreed to act as the non-exclusive agent for TWA in Mexico, Central and South America for the sale of transportation over the domestic carrier's system.

William A. Straith is listed as president of TACA Airways Agency, while John M. Lockhart serves as executive vice president of both the agency and foreign air line. (Dockets 1725 and 1726).

Inland May Lease WAL Plane

CAB has approved an agreement whereby Inland Air Lines may lease one Stinson airplane from Western Air Lines.



Western's Wartime Routes to the North—During the last three years, Western Air Lines has transported 16,006,556 lbs. of cargo between the United States, Alaska, and the Aleutians over the routes shown above. Total hours flown by WAL in military service amount to 27,213, and a plane average of 15.9 hours per day has been reached. The airline has maintained a perfect safety record with a total of 2,589 single trips between the United States, Canada and Alaska.

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Some types are available for work in pressurized quarters, others where explosion-proofing is vital. There are some that are used because they can stand contact with oil, or acid or water. Regardless of where you find them, Amphenol products have earned the right to be there by passing every required test and by performance on many a firing line.



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Feeder Airline Applicants Clash With Big Carriers in Texas Hearing

A CLASH between feeder airline applicants and existing trunkline carriers was an early highlight in the Civil Aeronautics Board's Texas hearing (Docket 337 et al), which opened before Examiner Thomas L. Wrenn in Fort Worth, Tex., last fortnight.

Thirty-six applicants are involved in the proceeding, which is primarily concerned with feeder lines in Texas and Oklahoma. Some 561 cities in the two states are affected directly or indirectly by the applications.

Controversies were by no means limited to the feeder vs. trunkline issue, however. Braniff Airways' proposal for a system of five trade area feeder lines in the Texas-Oklahoma area ran into opposition from independent feeder applicants.

Among Braniff's four applications being heard is one providing for acquisition of the five feeder systems in which the presently certificated carrier proposes to own 25% of the stock of each. The companies are Houston, Oklahoma, Texas Central, Great Plains and Lone Star Airways, Inc.

An early witness for Braniff on another of its applications was Henry Moore, director of research and statistics, who had prepared studies for the proposed feeder systems. Counsel for the independent feeder lines demanded that he be made available when the acquisition applications came up.

"If these other counsel want Mr. Moore back," said Gerald P. O'Grady, Braniff counsel, "they'll have to get him."

American Airlines' proposal for an ex-

tension of service from Ft. Worth-Dallas to Houston was opposed by counsel for Braniff, Chicago & Southern, Eastern and Mid-Continent Airlines, who maintained that the proposed route would duplicate service already available to the public through connecting service.

C. A. Rheinstrom, American's vice president-traffic, and C. W. Jacob, secretary, asserted that Houston's air traffic was underdeveloped and pointed to a "sad lack" of through service from Houston to the West Coast.

Ralph L. Heiminger, general traffic manager of Chicago & Southern, admitted under cross examination from Carl B. Callaway, counsel for Bowen Airways, that trunk line stops at the smaller Texas cities would materially impair feeder-line operations at the same points.

Chicago & Southern seeks the inclusion of Beaumont and Port Arthur, Tex., as intermediate stops on Route 53 between Shreveport and Houston and possibly Palestine, Tyler, Marshall and Longview on the same route.

Mid-Continent seeks to extend its present route from Tulsa to Dallas and Houston. Frank N. Buttomer, Mid-Continent's director of research, testified that the proposed route would operate exclusively via Dallas, eliminating a stop at Ft. Worth unless a "main airport" is located between the two cities.

Eastern proposed to establish a flight from San Antonio to Austin to Houston, thus augmenting its present Houston-San Antonio route.

Public Counsel Says Eastern Extension To Detroit Would Establish Monopoly

THE COMMUNITY of interest between Charleston, W. Va., and Detroit-Toledo-Columbus, is not sufficiently substantial to justify connection by a trunkline air operation, Public Counsel D. Franklin Kell and Vernon C. Kohlhaas pointed out last fortnight in a brief in exception to the report of Civil Aeronautics Board Examiner Ross I. Newmann in the Great Lakes to Florida case (Docket 570 et al).

The brief also took exception to the examiner's conclusion "that the public convenience and necessity require a Detroit-Miami route," asserting that such a recommendation was not based on all the facts of record.

The examiner's recommendation that Eastern Air Lines be extended into Detroit, thus creating a direct Detroit-Miami service "undoubtedly will create for that carrier virtual control of all the North-south traffic east of the Mississippi River, and to a large extent, will tend to close the door on the establishment of Additional north-south services by other carriers within the area," the brief contends.

Otherwise, public counsel generally concurred with the examiner's findings, recommending specifically that Delta Air Lines' certificate on Route 54 be extended (1) from Cincinnati to Chicago, via Anderson-Muncie-Newcastle, Ind., and (2) from Knoxville, Tenn., to Columbia, S. C., via Asheville, and Charlotte, N. C.

In addition to recommending that Eastern's application be denied, the brief concurred with the examiner's findings that the applications of American, Colonial, National and Pennsylvania-Central Air Lines, along with those of State Airlines, South East Airlines and Virginia-Central Airlines should be denied.

State Airlines, in its brief, declared that the examiner, "misled by the efforts of the presently established carriers to give this proceeding the complexion of an essentially terminal-to-terminal case having no other objective than long-distance carriage by air, has completely missed the point."

State, a non-scheduled operator, proposed an integrated system of routes with emphasis on short-haul transportation with DC-3s. The company answered the examiner's contention that smaller equipment should have been proposed on this type of operation with an assertion that "no smaller aircraft than the DC-3 would satisfactorily handle the average load over the proposed routes for the number of schedules proposed."

AA May Serve Akron

American Airlines has been notified by CAB that the national defense no longer requires a delay in inaugurating service to Akron, Ohio, on Route 22.

TWA Denied CAB Authority To Inaugurate Non-Stop Detroit-St. Louis Service

The CAB has denied Transcontinental & Western Air authority to institute non-stop service between St. Louis and Detroit on Route 58. The Board's order denying the service said:

"The Board finds that the proposed non-stop service between the said points would constitute a substantial departure from the shortest course between such points as determined by the route described in the certificate, and that such service may not be inaugurated unless and until the Board finds, upon applications of Transcontinental & Western Air and after notice and hearing, that the public interest will not be adversely affected by such service on account of such substantial departure."

8 Airlines Agree on Plan For Construction of New Chicago Terminal Building

A final proposal for the construction of a new administration building at the Chicago Municipal Airport has been agreed upon by the eight airlines operating into the terminal and the city of Chicago. Under the agreement, the operators will provide \$420,000 of the \$500,000 to be expended for the building.

The airlines would be repaid in rebates on passenger and freight loading fees from the city in annual installments over a 10-year period. The city will design and construct the terminal facilities, such as runways, parking space and drives, subject to the approval of the airlines. Preliminary designs and plans were to be presented to the airlines this week.

The airlines have agreed to rent 25,000 square feet of space in the administration building at a rental of \$2 a square foot.

International Airport, Now Ghost Field, Sold

The Pembina, N. D., Airport, which contributed a picturesque chapter to international flying between the United States and Canada, has been sold by Northwest Airlines to Whelan Brothers of St. Thomas, N. D.

The airport, during its heyday in the early 1930's, fulfilled a vital role as a port of entry, being on the border. Aviation made a negligible factor of distance and it soon became apparent that a port could be many miles inland. Then Northwest began to fly from the Twin Cities to Winnipeg instead of continuing a relay arrangement with Canadian Airways. The airport became a ghost landmark.

It has runways 2760 and 2630 feet long.

Philadelphia Club Formed

The Air Transport Club of Philadelphia has been organized with the following officers: R. E. Robeson, UAL, president; J. B. Fennell, TWA, vice president; Roy H. Rose, EAL, secretary; Gerard Martin, AA, treasurer; and H. E. Ruprecht, UAL; B. M. Thaden, TWA; Ken Moore TCA; E. J. Fincke, EAL; and Ed Rosa, TWA, directors. The club will meet the second Monday of each month.

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Braniff and Delta Seek to Extend Routes; Helicopter Taxi Line Asked

A FLURRY of applications filed by certificated air carriers highlighted developments in the Docket Section of the Civil Aeronautics Board last fortnight. Applications filed by prospective air carriers included one proposing a helicopter air taxi service to operate in the vicinity of Washington.

Braniff Airways filed applications to extend its present routes from Memphis to New York and Atlanta, Ga., while Delta Air Corp., filed two applications to extend two of its present routes in the North Carolina-Kentucky region, and another to push westward to Albuquerque, N. M.

Following is a round-up of the applications filed:

American Airlines

This certificated carrier has filed an amendment to its application under Docket 932 requesting that Richmond, Va., and Louisville, Ky., be named as points on Route 23.

Braniff Airways

This certificated operator has filed two applications seeking to extend its Route 15 from Memphis to Atlanta, and from Memphis to New York. On the Memphis-New York extension, Braniff proposes intermediate stops at Chattanooga, Charlotte, and Raleigh, N. C., Norfolk, Va., Washington, and Philadelphia. Chattanooga is the only intermediate stop proposed on the Memphis-Atlanta extension. (Dockets 1717, 1718).

Delta Air Corp.

This certificated operator has filed an application to extend its Route 24 from Ft. Worth, Tex., to Albuquerque, N. M., via Lubbock, Tex., and Clovis, N. M. (Docket 1716).

Delta also filed an application seeking to extend two of its routes and a new route between Cincinnati and Norfolk, Va. One route amendment would extend Route 24 from Columbia, S. C., to Washington, via Charlotte, and Winston-Salem, N. C., Roanoke, Lynchburg and Richmond, Va., and from Columbia, S. C., to Knoxville, Tenn., via (a) Charlotte and Asheville, N. C., and (b) Spartanburg and Greenville, S. C., and Asheville, N. C. The other route amendment would designate Louisville, Ky., as an intermediate stop on Route 54, alternate to Lexington, Ky., between Cincinnati and Knoxville, Tenn., and designate Chattanooga as an intermediate stop on Route 54 alternate to Knoxville, between Lexington and Atlanta. The Cincinnati-Norfolk route would serve Huntington, and Charleston, W. Va., Roanoke, Lynchburg and Richmond, Va., as intermediate points. (Docket 1720).

National Airlines

This certificated carrier has filed an application asking that its certificate on Route 31 be amended to authorize service to Rocky Mount, N. C., as an intermediate point between Wilmington, N. C., and Norfolk, Va. (Docket 1722).

Pennsylvania-Central Airlines

This certificated carrier and Henry A. Roemer of Brookfield, O., have filed an application seeking approval of an interlocking relationship to permit Roemer to serve on PCA's board of directors while a member of the board of directors of the Waynesburg & Washington Railroad Co. Roemer is listed as chairman of the board and president of the Sharon Steel Corp., Sharon, Pa. (Docket 1721).

Transcontinental & Western Air

This certificated operator has filed an application for non-stop authority between St. Louis and Detroit. The Board previously denied TWA's motion for non-stop authority between the two points, pointing out that a hearing would be necessary. Pre-hearing conference has been set for Feb. 5. (Docket 1715).

TWA and Sidney Maestre of St. Louis have filed an application for approval of an interlocking relationship to permit Maestre to serve as a director of TWA while on the board of directors of the Missouri-Kansas-Texas Railroad Co. Maestre is president and director of the Mississippi Valley Trust Co., of St. Louis.

The application states that his previous connections with TWA included a trip overseas to survey the international air transport field for the airline. The trip was paid for by TWA. The application says. (Docket 1724).

TWA also has filed an application asking for an amendment to its certificate on Route 58 so as to make Louisville, Ky., an intermediate point between St. Louis and Detroit. (Docket 1727).

State Airlines

This applicant, of P. O. Box 1862, Charlotte, N. C., has filed an application for 11 routes in the general territory between Detroit and Jacksonville, Fla. The routes named are essentially the same as those named in State's applications filed under Dockets 673 and 1206 and heard in the Great Lakes to Florida case (Docket 570 et al.).

State seeks routes between the terminal points Pittsburgh and Jacksonville, Cincinnati-Norfolk, Va., two routes between Louisville and Wilmington, N. C., two routes between Detroit and Jacksonville; a route between Cincinnati and Charleston, S. C., New Bern, N. C., and Montgomery, Ala., Louisville and Jacksonville, and Norfolk and Louisville. A permanent or temporary certificate is sought. (Docket 1723).

James R. Holstead

This individual of Marianna Army Air Base, Marianna, Fla., has filed an application for authority to engage in scheduled mail pickup and passenger service over three routes originating at Ruston, La. The routes are Ruston to New Orleans via 37 pickup and intermediate points; Ruston to Lake Charles, La., via 23 pickup and intermediate points, and Ruston-New Orleans, via 29 pickup and intermediate points. The applicant proposes to use Beechcraft 18's. (Docket 1713).

Midwest Airways

This company has filed an amendment to its application under Docket 1272 withdrawing proposed routes between Milwaukee, Wis., and Rockford, Ill., and between Milwaukee and Madison, Wis.

Seaboard Air Transport

This company has filed an amendment to its application under Docket 927 requesting either a permanent or temporary certificate.

George W. Simons, Jr.

This individual, of 910 17th St., N. W., Washington, has applied for authority to engage in air-borne taxi service by helicopters between Washington and an area within a radius of 75 miles of Washington. Simons, a stockholder in Airport Transport Inc., which has a contract with the Civil Aeronautics Administration for the transporta-

Boston-to-Daytona Service Discussed by Hotel Firm

The Sheraton Corp., owners of 21 hotels, is proposing a new Boston to Daytona, Fla., air service as a part of its promotion of two recently acquired Daytona hotels—the Princess Issena and the Sheraton-Plaza. The proposed airline service would be of a charter nature, but Robert L. Moore, treasurer, said the scheme was still in the "talk stage," and that no flights had been made as yet.

tion of passengers from Washington National airport to Washington, said that the proposed service would be non-scheduled over no set routes, thus making it in effect a public air taxi service. (Docket 1714).

Capt. Lucius S. Smith

This individual, of 2868 Terry Rd., Laguna Beach, Cal., has filed an application for four routes on which he proposes to use Lockheed Saturns for short-haul transportation. Terminals for the routes are Los Angeles-Salt Lake City, via six intermediate points; Salt Lake City-Albuquerque, N. M., via five intermediate points; Los Angeles-Albuquerque, N. M., via six intermediate points; Los Angeles-El Paso, Tex., via six intermediate points. (Docket 1719).

Proposed TWA—C & S Interchange Agreement Receives Setback

The proposed interchange agreement between Transcontinental & Western Air and Chicago & Southern Air Lines received a temporary setback in a recent prehearing conference after American Airlines entered a motion requesting that the case be postponed and heard in its regular place on the calendar as a new route application. Robert Griffith, American counsel, held that the agreement was in effect a new route application.

The American motion will be presented to the CAB for action, Examiner F. D. Moran said. As a result no date was set for the hearing. Interveners in addition to American were Transcontinental & Western Air and Braniff Airways.

National Asks Non-Stop

National Airlines has filed with CAB a request for a hearing on its proposal to operate non-stop between Jacksonville and Miami. The Board recently rejected the carrier's plan to put this operation in effect on the grounds that the route was too much of a deviation from the authority granted by the certificate. National desires the non-stop privilege in connection with its handling of New York-Miami through traffic.

Southwest Application Dismissed

The CAB has dismissed the application of Southwest Airways for 36 feeder routes in Texas, Oklahoma, and Louisiana at the request of the applicant (Docket 886). The company appeared in the recent West Coast case in behalf of its application for routes in Oregon, Washington and California. It has on file an application for helicopter service in the Los Angeles area.

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Old "99" was right down on the river lining up for the piers when over the intercom the waist gunner says: "Take her up a bit, Captain, we're shipping water back here." That, mister, is really low-level bombing. And that, too, is how the Skull and Wing Squadron deliver their Sunday punches against the bridges in Burma. In fact, their "bridge work" has been so effective that they are known from Lashio to Rangoon as the Burma Dental Clinic. Flying North American B-25 Mitchell bombers, these pilots have boxed the compass in Burma, distributing tokens for Tojo and turning hot spots into milk runs.



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37 Great Lakes Area Applicants Notified Of Prehearing Conference

Notices of prehearing conference on Feb. 19 have been sent to 37 applicants in the Great Lakes area looking toward their consolidation for hearing. Applications involved include those proposing service in Michigan, Illinois, Indiana and Ohio. C. Edward Leasure, CAB chief examiner, emphasized, however, that scope of the hearing may not necessarily be limited to these geographical limits or applications.

Applicants notified were All American Aviation, Mercury Development Corp., Southwest Feeder Airlines, Hannaford Airlines, American Airlines, Indiana Motor Bus Co., Aircar Service Co., Marion Trucking Co., Yellow Cab Co. of Cleveland, Transcontinental and Western Air, Indianapolis Railways, Ohio Airlines, Chicago and Southern Air Lines, Owosso Flint Bus Lines, Belt Aviation, Parks Air Transport, Plaza Express Co., Roscoe Turner, United Air Lines, Transamerican Freight Lines, Northern Michigan Airlines, Tri-State Aviation Corp., Gateway City Transfer Co., Chicago and Calumet Dist. Transit Co., Associated Truck Lines, Mandel Brothers, South Suburban Safe-way Lines, National Air Transport Co., Dayton and Western Ohio Airlines, Richard Charles Kugel, Brooks Air Line, North American Airlines, Illinois Air Lines, Penn Ohio Coach Lines Co., Red Star Way, Eastern Air Lines, Central United States Air Lines.

Consolidation Expected In Boston-New York-Atlanta-New Orleans Case

Notices of prehearing conference on April 4 have been sent to 18 applicants proposing services between Boston-New York-Atlanta-New Orleans looking toward their consolidation for hearing. C. Edward Leasure, CAB chief examiner, said that scope of the hearing may not necessarily be limited to these geographical limits or applications.

Applicants notified were Chicago and Southern Air Lines, Pan Atlantic Steamship Corp., Freight-Flite, Virginia Central Airlines, Milky-Way Transport Corp., American Airlines, Delta Air Corp., Pennsylvania-Central Airlines, Transcontinental and Western Air, Colonial Airlines, United Air Lines, Palmer Airlines, National Airlines, A. A. Fogarty, Associated Truck Lines, All States Freight, Shawmut Air Freight and Transport Co., Eastern Air Lines.

Three Intervenor

The CAB has granted the following parties leave to intervene in the North Central case (Docket 415 et al): Department of Justice, City of Milwaukee, and Braniff Airways. Hearing is tentatively set for March 5.

Ellis Postponement

Brief date in the Ellis Air Transport case (Docket 876 et al) has been postponed until March 19. The date was originally set for Jan. 22.

New Services

Pennsylvania-Central Airlines inaugurated non-stop service between Chicago and Detroit Feb. 10. PCA was recently granted the route and will operate scheduled 12 daily flights between the two cities. Seven of the flights are non-stop, and the remainder continue to serve Muskegon, Grand Rapids, Lansing and Flint, Mich.

Continental Air Lines has filed notice that it intends to inaugurate non-stop service between Midland and El Paso, Tex., and between Midland and San Angelo, Tex.

American Airlines has filed notice that it intends to inaugurate non-stop service between Akron and Dayton, O.

Western Air Lines has been authorized to inaugurate non-stop service between Butte and Great Falls, Mont.

American Airlines has been given authority to inaugurate non-stop service between Bridgeport, Conn., and Boston.

Pan American Airways announces the inauguration of a new daily flight between Miami and San Juan, P. R. The new night flight, formerly operated thrice weekly, brings to 60 the number of Pan American weekly flights serving the Puerto Rican capital. Southbound Miami-San Juan Clippers stop at Camaguey, Cuba, Fort au Prince Haiti, and Ciudad Trujillo, Dominican Republic.

Continental Air Lines announces the inauguration of service with DC-3 equipment over its Route 43, between Denver and Tulsa, Okla. The 21-passenger ships will replace the 14-passenger Lockheed Lodestars which Continental has been using over the route. The company was recently awarded three DC-3s from the Army, two of which are in service now.

Eastern Air Lines announces the inauguration of an additional flight between New York and New Orleans, bringing to six the number of daily round trips between the two points. DC-3 equipment is being used on the flights.

Trans-Canada Air Lines announces the inauguration of a third transcontinental flight between Montreal, Ottawa, Toronto, Winnipeg and Vancouver. An important feature of the new service, the company says, is the provision of considerable improved twice daily transcontinental service from New York to Western Canada and the Pacific Coast. The new service also makes provision for two through services daily to London, Ont., and Windsor-Detroit. Lockheed Lodestars are used exclusively.

Colonial Withdraws Objections

Colonial Airlines has written the CAB withdrawing its objections to the Board's order of Nov. 4, 1943 to show cause why the airline's mail pay on FAM 1 between New York and Montreal should not be set at 21.61c per airplane mile. Colonial previously had objected to the rate on the grounds that it was inadequate, but in its letter asked that the rate be made final. Colonial's action in effect eliminated the necessity for oral argument before the CAB.

C. & S. Favored

The CAB has terminated a temporary exemption order which permitted Chicago and Southern Air Lines to serve Little Rock, Ark., on a temporary basis. C & S was granted a permanent certificate to service Little Rock on Route 53 as an intermediate point between Pine Bluff and Memphis, Tenn.

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Think of some servicing problem like shock ring installation, that should be answered by some new device. Write us a letter, describing the problem. If we can solve it, and put our solution into production, we will send you a \$500 check for telling us about the problem. (Of course, the first person to suggest the problem will be the only one considered on any single matter.)

Better yet, if you yourself have devised, or can devise some method of meeting a servicing problem, let us know what it is. If we decide to develop your idea and put it into production, we will make arrangements with you on either an outright purchase or royalty basis — as we have done with the man who suggested the Jimmy. (He gets a set figure for every Shock Ring Jimmy sold.)

Give complete details, such as the make and model of ship you are writing about. Include rough sketches, if possible. Why not sit down tonight, remembering all the servicing difficulties you've ever experienced, and write us that letter?!

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Gorrell Replies to Hodges:

Ship-Operated Airlines Seen As Curb on Travel Benefits

Aviation in Danger Of Being Geared to Old Slower Mold

By EDGAR S. GORRELL

President, Air Transport Association of America

THE MAJOR PURPOSE of this article is to comment on one prepared by Paul Hodges, executive assistant of the Matson Navigation Co., and published in the Jan. 15 issue of *American Aviation*.

Hodges' thesis was that the Civil Aeronautics Board, in issuing certificates for international air transportation, should treat steamship companies "equally" with other applicants. All the steamship companies ask, according to Hodges, is that the "circumstance of being steamship companies, rather than some other kind of company, be not held against them . . ." in certificate proceedings. This is made to sound insignificant and to cause the unthinking promptly to assent.

Actually, of course, they seek a complete reversal of Congressional policy as expressed in the Civil Aeronautics Act of 1938. In addition, they seek to impose upon the Board, which is responsible for the development of air transportation, a requirement that it ignore a fundamental disability of a large group of applicants for new international routes.

Steamships Not Qualified

The steamship companies by virtue of being steamship companies are basically disqualified to undertake the responsibility of developing air transportation. Air and surface transportation are competitive. The area of competition is now very limited, to be sure, but it should be the objective of every airline operator, through improvements in service and reductions in costs, to broaden this field of competition to the maximum extent and as quickly as possible. Within a few years after the war it looks as if the airlines will be able to compete successfully with the steamship companies for first and second class passenger traffic and for a very small amount of highly-valued or emergency cargo. Even if the airline were operated by a steamship company, the airline would probably get a good portion of this traffic, but this is a very limited market on which to expect to develop air transportation as this nation must develop it. Our international air transport fleet would be a very small one if this were all it had to carry.

The expansion of air transportation will be dependent upon the trade and travel stimulated by the benefits of this new mode of transportation—benefits which will not in all cases be immediately apparent to every traveler and businessman to whom they might be valuable. It is at this point that the steamship-operated airline would fail. It would do so for two reasons.

In the first place the steamship management would be responsible to its stock-

holders for a large investment in surface vessels and would necessarily exercise the utmost care in guarding the integrity of that investment. Even assuming that the management would not deliberately set out to retard the development of its airline, it certainly could not be expected to make the tremendous efforts that will be required to expand the air transport market when those efforts might be thought to reduce the value of its much larger stake in surface facilities. This conflict of interest could not fail to produce over-caution and indecision when precisely the opposite characteristics are essential to success in overseas air service.

The second reason that the steamship company would fail in the development of the traffic required by its airline is because of the innate tendency of steamship men to think in terms of slow and relatively cheap ocean transport, and to regard as immutable the travel habits and methods of doing business which have grown up around, and have been adjusted to, steamship service.

Think of Slow Transport

There is good reason to fear that air transportation, if left to them, would be made to fit that mold rather than being given freedom to realize its full potentialities. If people retain their present travel habits and if businessmen continue to conduct their businesses and ship their cargo in the same way they always have, the available traffic for air transport will be very limited. The objective of the airline operator must be to demonstrate to the public the benefits of air travel and to convince businessmen that profits may be made through the use of air transportation even though the actual transport rates are high. It seems quite impossible that this type of contribution to the development of air transportation and to the wider distribution of its benefits would be made by a steamship operator.

The best that can be expected of the steamship operator is that he will be completely neutral as between the two forms of transportation. This is the best that Mr. Hodges had to offer. He gave assurances that the ocean carriers would not restrain aviation in favor of their surface operations and said that it would be just as advantageous for the steamship company to carry passengers on its air-

Five Virginia Intrastate Applications Up Mar. 13

The State Corporation Commission of Virginia has set March 13 as the date for further consideration of applications of five applicants for intrastate airline certificates.

At a recent meeting, the Commission took under advisement the application of Atlantic-Western Airlines to operate planes on an intrastate route between Danville, Lynchburg, Richmond, and Norfolk.

One of the recent applicants is Virginia-Central Airlines, which seeks authority to operate an intrastate passenger-freight service.

The applications are being opposed by other airlines, railroad, bus and trucking interests on the ground that these small companies are not adequately financed and that it is not sound policy for the commission to consider their applications at the present time.

line as on its steamships. Air transportation will not advance far under such a regime because the development of this very speedy and comfortable, but highly expensive, form of transportation requires more than impartiality. It requires the effort and initiative and imagination which can only be provided by an independent management which is convinced of the superiority of air transportation and is determined to persuade the traveler and the shipper that it is right.

This country has the finest air transportation system, the best transport aircraft, and the largest aggregation of operating experience of any nation in the world. These are of immense value to our national security, prestige, and trade, and they were not acquired through the observance of strict neutrality. This development has not been achieved under managements which felt that if people were going to travel they could go by air or rail or ship or bus, and it did not matter much which. It is attributable to the pounding of pavements in search of airline business—when there was very little—by men who had to fill the air-planes or go broke. These men created business where no business had been before, and if international air transportation is to develop as it should, the same efforts will have to be continued in the international field.

Mr. Hodges revealed his fundamental misconception of the air transport problem when he referred to air transport as "a newcomer in the trade," the trade presumably being overseas transportation. Air transportation is just not the same "trade" that he is discussing, or at least it should not be so regarded. The trade



One-Piece Stainless Steel Plane—This BT-12 Army trainer is constructed entirely of stainless steel, spot welded into a solid, one-piece structure. It is claimed that spot welds can be spaced at closer pitch than rivets and there is no line of holes to weaken the metal.

PRODUCING WING SPARS ON SHORT ORDER

By WILLIAM WINTER

Editor of "Air Trails" and author of "War Planes of All Nations" tells how Bell Aircraft has developed a spar milling machine that in twenty-two minutes does the job that once required twenty-four hours.



"THE Bell-designed spar milling machine is one of the great contributions this progressive company

has made to speed up American aircraft production. Previous to the development of this mill, now being used

by Bell and many other aircraft companies, it required twenty-four hours to complete a wing spar. Now these ingenious machines, covered by Bell Aircraft patents, turn out the spars for the giant Boeing B-29 Superfortresses being built in the Marietta Bell Aircraft plant in twenty-two minutes.

"The Bell spar milling machine, first developed in 1940, makes a cut two inches deep and four inches wide at the rate of sixty-five inches per minute.

"Under the old, slow method the material was fed into stationary cutter heads. In the Bell-designed mill the cutter moves across the metal, which is securely held to a bed by clamps that automatically drop down to let the cutting machinery pass and then jump up to grip firmly the spar behind the moving section.

"Since the cutting head runs on a cam which acts as a die, the machine cuts any contour up to twenty degrees.

"Each machine is its own meticulous housekeeper, for streams of coolant pumped onto the high speed cutter heads sweep away the shavings and deposit them into a central salvage pit.

"The advanced design which Bell engineers have built into this spar milling machine are further evidence that American 'know how' is the prime factor that now makes this country the greatest air power in the world.

"And when V-day dawns, this same engineering ability will be utilized in producing peacetime products that will bring this nation better living and greater values."

★ Buy War Bonds and Speed Victory ★



MEMBER AIRCRAFT WAR PRODUCTION COUNCIL...EAST COAST, INC.

BELL Aircraft

PACEMAKER OF AVIATION PROGRESS

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NIAGARA FRONTIER DIVISION

Buffalo and Niagara Falls, N. Y.

Airacobra (P.39) and Kingcobra (P.63)—Fighters
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The Bell Helicopter

ORDNANCE DIVISION

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Marietta, Ga.

B-29 Boeing Superfortress

he is talking about is the carriage of passengers and goods at 11 knots an hour in a large vessel on the surface, at an average cost of about 2 mills a ton mile. Air transportation is the carriage of passengers and goods at 250 miles an hour in a small vessel in the air, at 15 cents or more a ton mile. Air transportation is a revolutionary change from transport by ship and it must be conducted and sold entirely differently. Certainly the actual operation of a steamship line and the airline are completely different. No "integration" is possible here. The carriage of traffic by air would present an entirely new problem to a steamship line and it is equally, if perhaps not so obviously, true that the sale of this traffic is completely different also.

Airlines Make New Markets

A limited amount of airline traffic can be gotten by merely operating the airline, but air transport cannot live and develop on the dribblets that would be produced that way. The airline traffic man must depart completely from the methods prevailing in surface carriage and develop new markets for himself. As an example, advantage must be taken of the possibility of persuading the American public to spend a weekend vacation in London or a two weeks' vacation in Switzerland. This market has never been available to the steamship. Completely new thinking will have to govern the sale of cargo transportation by air because it will be necessary in many cases to alter methods of doing business. Air transport is not the same "trade" as steamship operation and it would be disastrous to the development of the business if it fell into the hands of those who were predisposed to think it was.

Steamship Service Necessary

In seeking to determine the role of the steamship in air transportation, the objective should be to meet the needs of both air transportation and the surface merchant marine. As has been said, a percentage of the overseas passenger business will go to the air without the exercise of much initiative by those who are responsible for running the airline. It would be most unfortunate if the management of a steamship company also owning an airline should decide to carry passengers by air and to cease its efforts to attract steamship passenger business, for if we are to have a well-rounded merchant marine it must include passenger as well as freight vessels. If the steamship companies are provided with airlines this might well be the result, and Mr. Hodges' assertion that an impartial attitude would be maintained as between the two forms of transportation indicates that this is more than a possibility. Impartiality is just as bad for the proper development of the merchant marine as it is for the proper development of air transportation. Even for passengers, ocean travel has many advantages. As Admiral Land has said:

"... To many persons a sea voyage provides an unequalled opportunity for relaxation, social life, and the benefits to be derived from sea air. Appetite-giving ozone and the iodine in the salt spray are not inhaled 10 and 15 thousand feet above the surface of the sea. There will be ships for these people.

"Although I will not argue against air transportation's superiority over surface transportation in certain fields, I

Safety Increases Man Hours

Transcontinental and Western Air accomplished a 50 percent reduction in lost time accidents at its Washington National Airport base during the past year, Russ F. Holdren, safety manager, has announced. The industrial accident frequency dropped from 30.48 per million manhours in 1943 to 16.01 in the maintenance and stores departments.

will argue that we are going to need just as many ships to carry on world commerce as though the airplane still did not travel over great bodies of water. In fact, I believe that we'll need more ships, because the airplane will develop interior regions of countries which hitherto have been difficult to reach by any other transportation."

Air-Sea Competition Good

If there is no easier way to retain the passenger business the steamship companies will undoubtedly be impelled through air competition to make the most of these advantages, and these efforts will not only provide a better and more varied service for the patron but they will also aid in providing the country with the surface merchant marine which it must have. If the steamship companies, on the other hand, are permitted to acquire their new competitor there will be little incentive for them to create these improvements. It should always be remembered that large grants of public funds are given our steamship operators for the purpose of developing and maintaining the surface merchant marine required by our national interest. With those funds comes responsibility for bending every effort to carry out this public policy.

As Mr. Hodges pointed out, one thing on which we can all agree is that this Nation needs "a sound, adequate merchant marine of the air and sea which will keep the American flag flying high and far in international competition." This is a great objective but he exposes the worst possible method of achieving it, a method which would deprive both air transport and the surface merchant marine of the vigorous, energetic management which must characterize both of them if the objective is to be attained.



Mobile Prop Service—This propeller service trailer developed in England by RoTol, Ltd., is a complete workshop that can be in operation within one-half hour after arrival. In addition to a complete assortment of servicing tools, it carries a rapidly erected crane with 23-foot lift and 1500-pound capacity, and a 22-foot square tent carried on a one inch tubular frame.



No Slip Ladder—This new safety ladder designed by The Glenn L. Martin Co. cannot creep, and yet is as easily moved as any other wheeled metal step. Two metal brackets rigidly attached to the back legs just in front of the wheels extend beyond the wheels and lift them off the ground when the ladder is in upright position. Yet when the front is picked up, it rolls back on the wheels just like former types.

PAA's Dr. McFarland Conducting Research On Fatigue in Flight

Dr. Ross A. McFarland, medical coordinator of Pan American Airways, is currently consulting pilots and engineers in Miami in an investigation of such problems as alleviating crew and passenger fatigue on long-range, high-altitude flights by cabin supercharging; control of sound vibration and instrument lighting; and regulation of temperature, humidity, and ventilation. He also is working on the control of insect-borne infectious diseases by means of built-in fumigating apparatus.

Pan American said that development of such postwar aircraft as the Douglas DC-7 has presented difficulties. For example, these 108-passenger airliners will cruise at 340 mph at altitudes up to 25,000 feet. At the latter altitude, pressurized cabins have been developed to keep cabin atmospheric pressure equivalent to 8,000 feet above sea level. Dr. McFarland, who also is connected with the Division of Industrial Research, Harvard University, has traveled Pan American's entire system in his research work.

Lighting Changes Proposed

Changes in aircraft and airport illumination to provide improved visibility in cockpit, cabin, flight operation and ground servicing were proposed by W. W. Davies, United Air Lines research engineer, at a meeting in New York of the American Institute of Electrical Engineers recently. He discussed the advantages of wing landing lights, redesign of flashing navigation lights, direct lighting of the entire instrument panel, positive ribbon lighting for airport runways, and installations of lights on cargo and passenger loading devices.



The B-29 forecasts a new kind of air travel

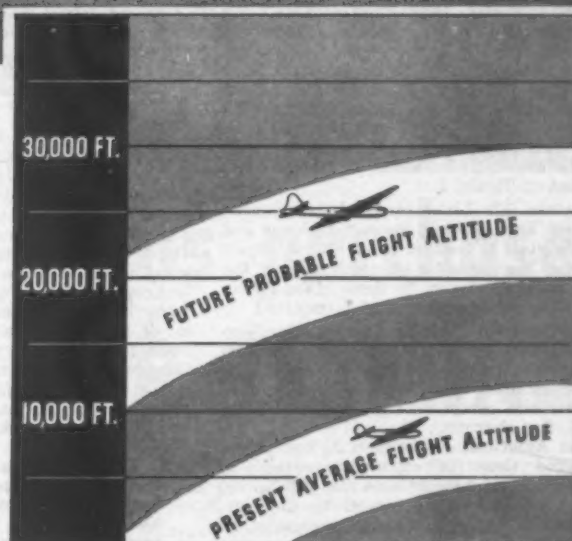
Its AiResearch Pressurized Cabin Controls prove substratosphere flight is safe—and comfortable

ONLY YESTERDAY the substratosphere was "no-man's land." To travel its thin, freezing air, men had to wear bulky, electrically-heated clothing—oxygen masks.

The Boeing B-29 is changing all that. *Pressurized Cabins* enable the Superforts to fly 30,000 feet, and higher, with complete safety and comfort for those inside.

AiResearch's part has been the development of air pressure controls . . . devices that keep "high-altitudes" *outside* the cabin, seal a comfortable "low-altitude" *inside* the plane at all times.

In peacetime, you will fly in similar AiResearch comfort-protected cabins. They



will help lift commercial flying to faster, smoother, high-up levels. There will be no air pressure changes to cause headaches, dizziness and ear-popping. You'll enjoy warm air or cool, as you like it, in a cabin free of smoke and odor.

Yes, a new kind of air travel is ahead. Count on AiResearch to help create it . . . and to develop new devices for your greater comfort on the ground, as well. AiResearch Manufacturing Co., Los Angeles, Phoenix.



Superfortresses carry AiResearch Cabin Pressure Regulating Systems
Engine Oil Cooling Systems • Engine Air Intercooling Systems
Supercharger Aftercooling Systems • Automatic Exit Flap Control Systems
Temperature Control Systems

Examiners' Proposal To Give Pan American Inland Points Opposed

Two applicants in the Civil Aeronautics Board's North Atlantic case (Docket 855 et al) declared last fortnight that they could not "admit the correctness" of the recommendations of Examiners Thomas L. Wrenn and F. D. Moran with respect to Pan American Airways in the transatlantic service.

The declarations were made by American Airlines and American Export Airlines in exceptions to the examiners' report. The carriers also expressed disagreement with the recommendation for additional U. S. terminals for Pan American.

The examiners recommended that Pan American and American Export be certificated to fly the four proposed transatlantic routes, provided the acquisition of AMEX by American were approved by the CAB.

American also took exception to failure of the examiners to "find and recommend that in event of disapproval by the Board of the proposed acquisition of AMEX by American, American should receive a certificate of public convenience and necessity in accordance with its application."

AMEX took exception to the failure of the examiners to recommend Chicago, Washington and Detroit as additional U. S. terminals for its proposed operations, and for failure to recommend it for Route II instead of Route I.

Eastern Air Lines opposed the naming of New York, Boston, Detroit, Chicago and Washington as additional U. S. terminals on the transatlantic routes, taking the position that service to these cities by an international operator is not required.

Trans-Oceanic Air Lines took exception to the examiners' failure to recognize that the potential postwar travel across the North Atlantic would not be sufficient to require the certification of three or more U. S. flag carriers.

Pan American Airways in its exceptions declared that the examiners erred "in failing to recommend that the public interest would best be served by the concentration under a single company of American-flag air transportation across the Atlantic."

Pan American also stated that the examiners were in error in recommending "any part of the applications of American Export Airlines," and took issue with the recommendation that AMEX should be certificated only in the event its acquisition by American Airlines is approved by the CAB.

Training at Douglas

Tentative plans have been formed by United Air Lines to send key men—chief mechanics, crew chiefs, lead mechanics and others—from each station on its system to one of the Douglas plants for a 30-day familiarization course in the DC-4 and DC-6 as these planes are added to its operating equipment. The 60 or more supervisors would attend lecture classes and tour the plant to acquaint themselves with every detail which goes into the construction of the planes. They would then return to their stations and train their own people in accordance with standard United policies.



A lot of people in the industry are sorry to see Stan Webber leave Delta Air Lines to take up ranching . . . But the lure of living on a ranch far away from the bustling crowds apparently is too strong for Stan . . . With Delta he's been doing a lot of traveling and he figures he'd better make the move to settle down now or never . . . He bought that big ranch last summer . . . An interesting story is how Webber met up with Delta's C. E. Woolman many years ago . . . Woolman was operating a cotton dusting service and an airline service in Peru back in the early days . . . Webber was representing an American industrial concern in South America and bought the first ticket on Woolman's airline . . . He still has the receipt . . . Woolman's airline subsequently became Panagra, and Webber kept in touch with Woolman through the years and joined Delta at the start of the war as Woolman's assistant . . . Webber is not only an able executive but has an industry-wide reputation of being a gentleman . . . Not a small distinction! . . . Best of luck on that ranch, Stan, and how many guest rooms do you have? . . .

We got this story second-hand, so some details may be wrong, but it's amusing . . . Just before Christmas, Eastern Air Lines ran some advertisements in newspapers (and very good ads they were, too) in which a member of the armed forces was shown, saying that he would be home by Christmas, "thanks to an EAL Expediter"—an expeditor being a girl-of-all-trades who really takes care of things . . . Through some mix-up, we are told, the ad ran in Baltimore papers on Jan. 9 . . . Oh well, the soldier could have been thinking of next Christmas and he might have had a long way to go . . .

We had a swell talk the other evening with our old friend "Slim" Carmichael, PCA's vice president-operations, who, in our books, is a topflight guy . . . We got on the subject of plane utilization, and Slim was pointing out that PCA is now flying its equipment an average of 11 hours 46 minutes daily, compared with some six or seven hours a few years ago . . . So we brought up the question of safety, asking Slim if equipment can be adequately maintained in the face of such utilization . . . There have been many statements made that equipment was safer than ever, and we wanted to know if the experts really meant this or if they were just whistling to keep the spooks away . . . We must have touched on one of Slim's favorite subjects, because he sure explained things—but good . . . "The war has taught us a lot of things," he said, as nearly as we can remember his exact words . . . "We've been forced to fly our planes more, and we've been forced to find shortcuts and faster maintenance methods. Our maintenance has never been better than it is right now. Our planes have never been in finer shape than they are now" . . . The emphasis that he put on this last sentence left no room for doubt—he wasn't kidding . . . and this is a comforting thought to pass on . . .

We pondered a long time about using this story, but finally decided that it was too good to pass up . . . It seems that Western Air Lines has a particularly luscious stewardess named Betty Wright (the line forms over here, fellows) . . . She was flying a trip recently and had a southern lieutenant on board who was really giving her the well-known business from the "wolf seat" . . . (The "wolf seat" is the one in the rear from which you can watch every move the stewardess makes) . . . Every trip Miss Wright made up or down the aisle, the fellow had some loud and bright remark to make . . . This kept up with and without the amusement of the other passengers until finally she began to serve lunch . . . Stepping up to the lieutenant, she asked politely, "How would you like your coffee?" . . . To which he replied, "Hot and sweet, just like I want my women" . . . Miss Wright, the perfect picture of courtesy, had the right answer . . . "And would you also like it black?" she asked . . . Pandemonium in the plane was terrific, as the passengers chalked up one for Miss Wright . . .

The public relations director of a leading airline had a red face shortly after Christmas when he discovered that the company Christmas cards that he hurriedly mailed one night at a railroad station all carried on the Post Office cancellation stamp the words "Ship by Rail" . . . Fine thing! . . .

Pilots, do you have ulcers? . . . Don't deny it, now . . . We have it from no less an authority than Dr. A. J. Herbolzheimer, assistant chief, aviation medical division of CAA . . . In a paper which he delivered recently, Dr. Herbolzheimer, according to our information, remarked that peptic ulcer almost amounted to an occupational disease among professional pilots . . . He attributed its prevalence to noise, vibration, reduced oxygen supply, "irregular mode of life associated with occupational flying," subconscious fear of altitude, sense of responsibility, unforeseen conditions arising during flight, or apprehension of adverse financial, social or family circumstances . . . Our informant who sent us this startling little item, says: "Personally, I feel that it is more likely due to the poor quality of hamburgers during the late depression" . . . Tut, tut, isn't that unkind? . . .

Eric Bramley

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GRAND CENTRAL AIRPORT

Famous pioneer airport, in the heart of the aircraft industry, with modern, up-to-minute facilities. Class IV classification by CAA, "suitable for the largest aircraft now in use or planned for the immediate future."

..... "CAL-AERO" has purchased GRAND CENTRAL AIR TERMINAL

This airport was originally acquired by the Curtiss-Wright Corporation in 1929 at a cost of almost \$3,000,000. Located here is famous Curtiss-Wright Technical Institute, which is hereafter to be known as CAL-AERO TECHNICAL INSTITUTE.

This change in name brings to one of the largest and most distinguished C. A. A. Government-approved aviation technical schools a name of equal distinction,—a name that emerges from the war internationally famous for achievement in Aviation Training.

Highly honored for distinguished service, Cal-Aero, with its associated schools, has trained more than 20,000 pilots and 7,500 crew members for the Army Air Forces, with an unequalled record of safety and efficiency. At the same time and continuously since 1929, this school—now known as CAL-AERO TECHNICAL INSTITUTE, has trained thousands of civilians for the production front with assured confidence in the future of Aviation.

In light of this confidence and in preparation for the great post-war activity in Aviation, "Cal-Aero" has purchased Grand Central Air Terminal in Glendale, California to keep pace and emerge from the war, larger, stronger and finer than ever before.

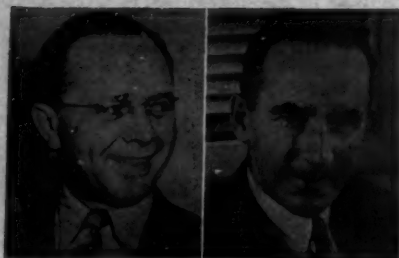


GRAND CENTRAL AIRPORT
GLENDALE 1, CALIFORNIA

BUY MORE
WAR BONDS
★
GIVE TO THE
RED CROSS!



THIS TOWER OVERLOOKS AVIATION'S MOST DISTINGUISHED SCHOOL OF AERONAUTICS



Wall

Salisbury

Maintenance

F. A. Page, since 1940 superintendent of maintenance at United Air Lines's Chicago headquarters, has been transferred to United's Pacific operations at San Francisco as manager of mechanical operations. D. M. Kelley, superintendent of mechanical operations for UAL's eastern region, will succeed Page at Chicago. H. F. Salisbury, who has been in charge of all phases of mechanical operations for the company's trans-Pacific ATC flights since their inception, has been named superintendent of United's Pacific maintenance base at San Francisco. J. L. Wright, veteran UAL aircraft mechanic and operations supervisor, has been appointed superintendent of maintenance for Pacific operations at San Francisco. C. M. Wall is leaving Pacific operations to take over new responsibilities as assistant to the regional manager of United's western operations.

Passenger Service

C. C. Robinson, former western regional superintendent of station service for United Air Lines at San Francisco, has become superintendent of passenger service supply at the company's Chicago headquarters. Ralph Kosa, former superintendent of service supply, has been assigned to the staff of D. F. Magarrell, UAL passenger service director, as a materials specialist and coordinator between supply service, stewardess service and dining service. H. K. "Doc" Cary, eastern regional superintendent of reservations service, has been named manager of passenger service at Portland, replacing D. H. Derr, now chief passenger agent at Los Angeles. Fred Miller transfers as chief passenger agent from Burbank to San Francisco, succeeding Robert H. Carl-



Rhoades

Kelley



Moore

Coney



Rudquist

McRae



Robinson

Cary

son, transferred to western operations. Peter Burfening Jr. becomes manager of passenger service at Detroit. He is replaced as Reno passenger service manager by Robert F. Gardiner, former chief passenger agent at Oakland. E. S. "Cy" Perkins, chief passenger agent at Chicago, has been named manager of passenger service at Boston, preparatory to United's inauguration of service into that city.



Page

Wright

Miscellaneous

Don D. McRae has returned to Eastern Air Lines as superintendent of communications, after serving in the armed forces since 1942. He was given leave of absence from EAL to serve as a major in the AAF, where he assisted in coordination of airways communications along the North Atlantic air routes.

Glenn C. Luce has been named manager of air express in the central department of Railway Express Agency with headquarters in Chicago. He succeeds E. L. Head, appointed REA superintendent at San Antonio, Tex.

E. H. Johnson, former regional personnel director for United Air Lines at Cheyenne, has been appointed assistant director of personnel, with headquarters in Chicago. E. J. Galbos succeeds him at Cheyenne. Wesley J. Christensen continues as assistant to Galbos.

J. T. Moore, formerly city traffic manager of Trans-Canada Air Lines in Calgary, Alberta, has been named DTM.

Hicks C. Coney, former assistant night city editor of the Los Angeles Examiner, has been named director of public relations and advertising for Pan American Airways in Los Angeles.

Weldon E. "Dusty" Rhoades, former United Air Lines pilot who is now Gen. Douglas MacArthur's personal pilot, has been promoted to lieutenant-colonel.

Miss Jerry Rudquist, former instructress of stewardesses, has been appointed chief stewardess for Northwest Airlines' eastern region. She succeeds Frances Render, who has resigned. Jessie McLeod, NWA stewardess, will become instructress of stewardesses.

Robert E. Lees, former assistant to the executive vice president of TWA, has been transferred to Washington as assistant to Gen. T. B. Wilson, chairman of the board.



Christensen

Galbos



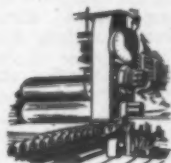
E. H. Johnson

Derr



Opening

A New Chapter in the History of Bearings



IN a few short years, silver has added a complete new chapter to the history of bearings.

Applied by the Mallory electroplating process . . . used in nearly every American fighting plane . . . silver has smoothed the way to seven-mile-a-minute speeds and thousands of revolutions per minute. Here it fights friction and heat . . . withstands crushing pressures and stresses . . . permits tolerances to 2/10,000 of an inch, and surface finishes measured in millionths of an inch.

But there are many other applications to which Mallory precision bearings are ideally suited—and other materials of which they are made. The list of products tabulated below is merely suggestive of their adaptability.

The point is that as Mallory precision bearings continue to be made, the Mallory program of research goes on and on. Improvements are being discovered continuously. New metals are being developed—some for heavy duty, others for light. Not least important, Mallory has established new and economical methods of producing precision bearings, in quantity, and final costs have been greatly reduced.

Nobody knows where the chapter will end. But wherever precision bearings must absorb unusual loads, stand up under high speeds, improve efficiency and performance—there Mallory experience will serve you well. Call on our engineers for assistance. They're ready to help you—*anytime*.

P. R. MALLORY & CO., Inc., INDIANAPOLIS 6, INDIANA

P. R. MALLORY & CO. INC.
**MALLORY
PRECISION
BEARINGS**

FOR AIR COMPRESSORS • AIRCRAFT, AUTOMOTIVE AND DIESEL
ENGINES • ELECTRIC GENERATORS AND MOTORS • ELEVATORS •
FANS AND BLOWERS • GOVERNORS • HOME APPLIANCES • MACHINE
TOOLS • PUMPS • RAILROAD EQUIPMENT • ROLLING MILLS •
STATIONARY AND PORTABLE ENGINES • STOKERS • TURBINES

Recent CAB Orders Affecting Air Carriers

3376: Order of investigation of property rates of all domestic carriers and Railway Express Agency (Docket 1705).

3377: Order to institute proceedings to fix mail rate for Pan American Airways' New York-Europe service.

3378: Denying National Airlines non-stop authority between Tampa and Pensacola, Fla.

3379: Permitting Hanaford Airlines to expand its application consolidated for hearing in the North Central case (Docket 415 et al.).

3380: Granting Northern Airlines permission to intervene in the Northeast Airlines route consolidation case (Docket 1607 et al.).

3390: Granting cities of Lubbock and Wichita Falls, Tex., leave to intervene in re-opened El Paso-Oklahoma City-Memphis case (Docket 503 et al.).

3391: Rescinding certificate of convenience and necessity to Northeast Airlines from Mayflower Airlines, and designating the route as Route 70.

3392: Granting Department of Justice, City of Milwaukee and Braniff Airways leave to intervene in the North Central case (Docket 415 et al.).

3393: Amending service suspension order to permit Eastern Air Lines to land at Philadelphia.

3394: Authorizing American Airlines to inaugurate service to Akron, O.

3395: Authorizing United Air Lines to inaugurate non-stop service between Sacramento, Calif., and Eugene, Ore.

3396: Approving leasing agreement between Western and Inland Air Lines for lease of one Stinson airplane by Western to Inland.

3397: Terminating temporary exemption order to American Airlines to serve Joplin, Mo., as an intermediate point between Springfield, Mo., and Tulsa, Okla.

3398: Terminating temporary certificate for Chicago and Southern Air Lines to serve Little Rock as an intermediate point between Pine Bluff, Ark., and Memphis.

3400: Amending certificate of convenience and necessity of Mid-Continent Airlines to extend Route 26 to New Orleans and authorize non-stop operations between Joplin, Mo., and Ft. Smith, Ark.; amending certificate of convenience and necessity of Continental Air Lines to make Bartlesville, Okla., an intermediate point on Route 43 between Wichita and Tulsa, Okla.

3401: Denying petition of Port of New York Authority for leave to intervene in the Pacific case (Docket 547 et al.).

3402: Consolidating application of Olson Steamship and Navigation Corp. (Docket 1570) in Pacific case (Docket 547 et al.).

3403: Severing applications of Francis L. Duncan (Docket 1641) and Western Air Lines (Dockets 1627, 1628) from Pacific case (Docket 547 et al.).

3406: Approving agreement of Chicago and Southern Air Lines and Eastern Air Lines for joint use of radio transmitter at Evansville, Ind.

3407: Denying motion of Continental Air Lines for consolidation of application under Docket 1693 in North Central case (Docket 415 et al.).

3408: Dismissing application of Nebraska Airlines (Docket 1321).

3409: Approving agreement between Pan American and (KLM) Royal Dutch Airlines for use of Pan American Field at Miami.

3413: Dismissing applications of Cloud Airlines (Dockets 1263, 1264, and 1617).

3413: Denying petitions of United and TWA for reconsideration of the Board's decision in the Denver-Los Angeles case.

3414: Denying the petitions of Braniff, C. & S., and TWA for reconsideration of the Board's decision in the El Paso-Oklahoma City-Memphis case.

3415: Authorizing PCA to inaugurate non-

stop service between Detroit and Chicago on Route 32.

3417: Extending foreign air carrier permit of (KLM) Royal Dutch Airlines for three months from Jan. 31, 1945.

3418: Extending foreign air carrier permit of Expreso Aereo Inter-Americano, S.A., for three months from Jan. 31, 1945.

3419: Consolidating applications of Van Meter, Streeter & Co. (Docket 1328), North Central Airways (Docket 1571) in North Central case (Docket 415 et al.).

3420: Rescinding service suspension order for American at New Haven, Conn., Bridgeport, Conn., and Springfield, Mass., on Route 18.

3421: Denying TWA authority to inaugurate non-stop service between St. Louis and Detroit.

3422: Approving interlocking relationship for Gustav Metzner to serve as a director of Railway Express Agency while serving as a director of various railroads.

3423: Approving interlocking relationship for C. McD. Davis to serve as a director of Railway Express Agency while serving as a director of various railroads.

3424: Granting American Export temporary exemption to operate transatlantic flights from Baltimore in place of La Guardia Field.

3425: Granting Shreveport, La., and Marshall, Tex., permission to intervene in the Texas-Oklahoma case (Docket 337 et al.).

3426: Denying Little Rock, Ark., permission to intervene in the Texas-Oklahoma case (Docket 337 et al.).

3427: Denying petition of Braniff for consolidation of its application under Docket 1682 in the Texas-Oklahoma case (Docket 337 et al.).

3432: Authorizing Western to inaugurate non-stop service between Butte and Great Falls, Mont., Feb. 1, 1945.

3433: Authorizing American to inaugurate non-stop service between Bridgeport, Conn., and Boston, Feb. 7, 1945.

3434: Dismissing application of Grays Harbor Lines (Docket 1440).

3435: Dismissing application of American President Lines (Docket 1581).

3436: Denying petition of American for vacation or modification of the Board's order to show cause why the carrier's mail route should not be reduced from 80 to 32 cents per ton mile.

Northern to Intervene

Northern Airlines, a non-certificated applicant, has been granted leave by the CAB to intervene in the Northeast Airlines hearing asking consolidation of three of its routes (Docket 1607 et al.).

Technical Group Set Up In Airfreight Program

Formation of an Airfreight Project Group to handle the technical phases of American Airlines' Airfreight program was announced last fortnight by Otto E. Kirchner, director of aircraft engineering.

The group will devote its time to the problems associated with loading and unloading Airfreighters, packaging, and preservation of perishable cargo, Kirchner said.

R. H. Murray, a member of American's maintenance and engineering department since 1939, was named project engineer. He will be aided by A. C. Botsford as assistant engineer, and a technical staff.

Prior to formation of the project group, American engineers had already originated the DC-3 Airfreighter interior which the company claims can carry 1200 pounds more payload than any other cargo airplane in domestic airline service.

Other American cargo developments include a cargo conveyor for speeding loading and unloading operations, and a dress container for 47 dresses which weighs 17½ pounds, compared to 147 pounds for a comparable surface shipping container.

Exemption Order Terminated

The CAB has terminated a temporary exemption order which permitted American Airlines to serve Joplin, Mo., as an intermediate point on Route 30. American was granted a permanent stop at Joplin as an intermediate point between Springfield, Mo., and Tulsa, Okla.

PCA Uses Floor Studs

Studs, screwed into anchor nuts underneath the floor, are being used by Pennsylvania-Central Airlines to save four-fifths of the time formerly required for the installation of cabin seats in DC-3 Capitaliners. The new method, devised by Earl Whitson, lead mechanic, is one reason why PCA has been able to reconvert a DC-3 in the record time of 15 days.

Shipping Federation Deplores Lack of Government Policy on Air-Sea Correlation

The National Federation of American Shipping has issued a statement on behalf of steamship operators seeking certificates from the CAB to correlate air-sea services decrying the lack of government policy.

"The lack of a government policy with respect to international sea and air transportation prevents the applicant steamship lines from planning their requirements for passenger ships at a time when their importance as troop transports is being dramatically demonstrated."

The statement declared that public opinion "was sharply focused on this point recently when one of the steamship companies was compelled to cancel its application to the Maritime Commission to build three new passenger ships because of the competitive factor of air service." Obviously, the reference was to United Fruit Co.

"This uncertainty on the part of one

applicant is common to all others and becomes aggravated by the fact that the merchant marines of other great maritime powers will almost certainly employ all the advantages of combined ship-air service," the statement continues.

"By doing so they will be able to estimate their passenger shipping requirements in proper relationship to their aviation requirements and thus evolve an efficient unified plan of operation. If the American merchant marine cannot so plan, it obviously will be placed at a critical disadvantage."

"The vital public interest in a strong merchant marine should determine government policy in deciding applications of American flag shipping lines seeking to engage in overseas air commerce on an equal footing with other nations," the statement said. It pointed out that the steamship companies asked no preferential treatment in pursuing their applications.

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Prehearing Conference Set for 43 Applicants In Mid-Atlantic Area

Notices of prehearing conference on April 3 have been sent to 43 applicants in the Middle Atlantic area looking toward their consolidation for hearing. Applicants involved include those proposing service in Pennsylvania, New York, New Jersey, Delaware, and Maryland. C. Edward Leasure, CAB chief examiner emphasized, however, that scope of the hearing may not necessarily be limited to these geographical limits or applications.

Applicants notified follow: Page Airways, All American Aviation, Chesapeake Airline, Philadelphia and Eastern Airlines, Asbury Park-N. Y. Transit Corp., Aircar Service Co., Union Airways, John C. Van Son, Mohawk Lines, Transcontinental and Western Air, F. X. Bowman, Land and Water Air Service, Blue Ridge Lines, Otto Aviation Corp., Read Quenten Chalfant, United Air Lines, Eastern Air Lines, Pennsylvania-Central Airlines, Hyman Flying Service, Empire State Airlines, Aloysius J. Fahey, Van Dyke Airport Service, Buffalo Aeronautical Corp., Lehigh Aircraft Co., Public Service Interstate Transportation Co., American Airlines, Metropolitan Airways, Yellow Cab Co. of Philadelphia, Durham-New York Helicopter Service, B. K. S. Flying Service, Joseph K. Damon, Arlie R. Stamper, Air Commuting, John B. Sutton, Jr., Norseman Air Transport, Lincoln Air Lines, Gilbertville Trucking Co., Brinckerhoff Flying Service, Northeast Airmotive Corp., Transamerican Freight Lines, A. A. Fogarty, J. N. Callinicos, Robinson Aviation.

UAL Non-Stop

The CAB authorized United Air Lines to inaugurate non-stop service between Sacramento, Cal., and Eugene, Ore.

Right to Intervene Given In North Central Case

Civil Aeronautics Board Examiner F. Merritt Ruhlen in a letter to parties in the North Central case (Docket 415 et al) has announced that the following have been granted leave to intervene: Department of Justice, City of Milwaukee and Braniff Airways. Ruhlen also has recommended that the City of Aberdeen be permitted to intervene. Hearing is set tentatively for March 5.

The following applicants have been requested to send two copies of their exhibits to the Department of Justice, Washington: Bos Air Cargo, Burlington Transportation Co., Chicago & Calumet District Transit Co., Gateway City Transfer Co., Maxwell Elmer McCormack, North Central Airways, Plaza Express Co. and R-B Freight Lines.

Transcontinental & Western Air and Mid-Continent Airlines should send two copies of their exhibits to Braniff Airways, Ruhlen said, and all applicants proposing service to Milwaukee should send two copies of their exhibits to Joseph L. Bednarek, assistant city attorney, City of Milwaukee, 801 City Hall, Milwaukee, Wis. Those proposing service to Aberdeen, S. D., should send copies of their exhibits to Frank W. Noll, city attorney, Aberdeen.

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Pilots' Physical Approval Now Up to CAA Inspector

Handicapped Need Not File Appeal in Washington Office

A SIMPLIFIED procedure for the issuing of pilots' licenses to physically handicapped applicants was announced last fortnight by T. P. Wright, Civil Aeronautics Administration administrator.

Under the new setup, ability to fly, when proved to a CAA aeronautical inspector in the field, will be the sole basis upon which certificates will be granted, he said.

The new arrangement, brought about by a revision in the Civil Air Regulations, eliminates the necessity for physically handicapped applicants for pilot's licenses to appeal to Washington.

Wright pointed out that an increasing load of work and an inadequate supply of workers in the CAA's medical staff in Washington had resulted in a large backlog of applications from physically handicapped, would-be pilots.

Applicants whose medical examinations were performed within the last year should write the Medical Division of CAA in Washington and receive their certificates at once. Otherwise the applicant's medical certificate might lapse because of unavoidable delay.

Under the new ruling, the applicant gets his physical examination from an authorized CAA medical examiner, who notes on his report the applicant's physical defect. He is then issued a student's certificate without further examination or test.

The instructor decides when he is safe to solo, and when he has obtained sufficient experience in the air, he appears before a CAA aeronautical inspector and proves his ability to fly. Thereupon, he is given a pilot's certificate.

"There is no need for any applicant to write Washington," Wright said. "There is no need for enlisting any other helper in getting the certificate. The whole matter lies between the applicant and the inspector whose instruction from Washington is that if the applicant can fly, he is to be given a certificate. Even those whose cases have been hung up in Washington may apply anew in their own community and obtain licenses if they are qualified.

"This is another, and an important step, in the CAA's effort to remove all restrictions consistent with safety, from the professional and pleasure flier. There are still other changes now under consideration."

Menominee School Opened

Northland Aviation Corp. has opened a flying school and charter plane freight and passenger service at the Menominee, Mich., County Airport. Officers are Merle White, president, Capt. William D. Aull, now on active duty, vice-president, and E. J. Bertrand, secretary-treasurer. White and Bertrand were recently released as instructors at Army flight schools.



Traveling Salesman—Gordon Verrier of Long Beach, Cal., about to enter plane with brief case, has made one-third more business calls with his light plane than he could have made by any other means of travel in covering his territory for Breeze Corporations. A friend is at the left.

Air-Traveling Salesman Makes Third More Calls

Postwar expectations of air-traveling salesmen calling on their customers via their own light planes have been tested by Breeze Corporations, Inc., of Newark, N. J., and proved practical.

A west coast service engineer for the company, Gordon Verrier of Long Beach, Cal., has completed four months of private air travel on his calls. He flies a small, two-place cabin plane which cruises at 90 mph. Business takes him to many military bases within a 200-mile radius and often on much longer trips. On short trips he makes in one day the business calls which required two days with ground transportation, and the percentage of time saved increases with the distances flown.

On a recent 400-mile round trip through Arizona, New Mexico, Texas, Oklahoma and Kansas he made approximately one-third more business calls than he could have made by any other means of travel.

The plane is equipped with Breeze accessories and provides an exhibit of products under actual flying conditions.

Helicopter Report Available

A complete stenotyped record of the First American Helicopter Conference, held in New York May 16, 1944, previously unpublished for security reasons, is now available from the Sixth Avenue Association, Inc., 570 Sixth Ave., New York, 11, N. Y., organizer and sponsor of the conference. Attended by engineers, designers, civic organizations and Army, Navy, Coast Guard and other Government officials, the meeting was devoted to discussion of five main subjects—Landing Roofs, Size of Helicopters, Traffic, Safety of Operation, and Civic Authorities. Two special committees were appointed to carry on further study and report to the next conference to be held in April, 1945.

Single Receiver Contemplated By CAA for Communications, Navigation, Traffic Control

A single receiver with which the average private pilot may secure all the essential airways services is contemplated by the Civil Aeronautics Administration plan for navigation, communications and traffic control, Thomas B. Bourne, CAA Director of Federal Airways, has informed members of the Dayton Engineers Club. This receiver must be capable, either by push button or tuneable control, he said, of covering the 108-132 mc frequency band, and will be able to receive navigational guidance along the airways, navigational guidance for instrument approaches, and all the essential two-way radio communications.

Among additional improvements necessary to meet the demands of postwar air traffic, he stressed (1) making more automatic the operation of the air traffic control system, and (2) making it possible for the pilot to assume more direct responsibility for the safe navigation of his aircraft, including the avoidance of collision between aircraft. He said that these two requirements will provide a fertile field for the more imaginative technicians, and challenged those present, as radio engineers, to remember both the private pilot and the economic limitations that will restrict us in the postwar period.

Listing various proposals toward solving these problems, he said that with the proposed basic navigation and communication system in full operation throughout this country together with the improvements now being sought, the CAA feels that air traffic can be moved safely during all weather conditions in the same volume and with the same frequency as is today possible under the most favorable weather conditions, with landings at approximately 50 second intervals on one runway, and takeoffs at the same interval on another.

Safety Bureau Finishes Revision of Regulations

The Civil Aeronautics Board's Safety Bureau has completed revision of Parts 20, 43 and 60 of the Civil Air Regulations and will submit the final drafts to the Board for approval soon, according to Robert D. Hoyt, chief of the safety rules and education division.

Hoyt said the final drafts contained no major change from those made in the revisions submitted to the industry for final comment last November, although some opposition had been expressed to the incorporation of contact flight rules under general flight rules in Part 60. He emphasized, however, that this opposition was confined to terminology, chiefly within the Government, and would have no final effect on the rules themselves.

Response from the industry with respect to the three parts has been good, Hoyt said, with no major changes in the suggested revisions being proposed.

Carolina Luscombe Moves

The Carolina Luscombe Sales Co., formerly of Laurens, S. C., has moved to Charlotte and established offices and operations at Palaz Airport. Haskell A. Deaton Flying Service will handle the North and South Carolina operations of the company.



Loading anti-tank gun into WACO CG-4A. USAAF photo

Evans loading engineers plan now for future carriers of the sky

Gliders are on the wing! The Army has demonstrated their effectiveness in mass movements of men and supplies. Production is at a new high, and recently announced tests of super gliders indicate that serious engineering thought is being given to the glider as a future carrier of passengers and freight.

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Reversible Pitch Propellers Recommended By CAA Engineer 'for Skillful Pilots'

THE USE of reversible pitch propellers as effective air brakes for aircraft is discussed in a recent article by John C. Morse of the CAA's division of aircraft engineering, who states that the landing run of a plane can be reduced to one-third the present length by the use of such propellers. They are also useful for maneuvering flying boats on water.

While aircraft are presently controlled by flaps and wheel brakes, Morse said that these types of controls are limited in their effectiveness. These limitations can be overcome by the use of reversible pitch propellers, he said, although they require considerable pilot skill.

Morgan said that it is recognized that for real usefulness as a brake, such a propeller must be capable of being shifted into and out of reverse pitch almost instantaneously at the will of the pilot.

"Such a rapid pitch change prevents the engine from over speeding without throttling while the propeller blades are passing through zero pitch, and permits the pilot to return the propeller blades to normal pitch in case he wishes to continue flight," he observed.

"It must be realized that any use of a reversed pitch-propeller as a braking during flight will require considerable pilot skill. It is already recognized that the

speed of the airplane must be kept above the stalling speed. However, little is yet known regarding the effect on longitudinal and lateral stability and control, or what pilot technique will be required to overcome any desirable effects that may result.

"It is foreseen that such a fast reversing propeller will be invaluable for many types of operation. A fighter pilot upon approaching his target can retard his airplane by use of a fast reversing propeller, and obtain longer firing time. Also a pilot of a heavily loaded airplane can land at increased speed and satisfactorily use reversing propellers for brakes."

Hartung Airport Renamed

The Greater Detroit Aviation Corp. has been organized, and has acquired Hartung Airport, Roseville, Mich., and renamed it Greater Detroit Airport. Officers of the new corporation are: Thomas MacDonald, president; William Gershenson, chairman of the board; and Aaron H. Gershenson, secretary-treasurer. The company will engage in the sale of new planes, flight and ground school instruction, and offer regular airport facilities including hangar storage for private owners. It has been appointed exclusive sales agent in Wayne County for the Republic Baby Thunderbolt amphibian.

Stall Warning Planned

Development of two stall warning indicators which are considered suitable for personal type aircraft has been completed by the Civil Aeronautics Administration, and the instruments are now being manufactured by W. & L. E. Gurley Co., Troy, N. Y., and Power Equipment Co., Detroit. Both instruments, however, become inoperative when ice is accumulated on the wings. The CAA is continuing development of a third type through contract with Westinghouse Electric & Manufacturing Co., Pittsburgh, which it is hoped will function satisfactorily under all conditions including icing.

Water Injection May Be Factor in Cutting Private Flying Costs

Water and water-alcohol injection which is being used today to supply added bursts of power for Army and Navy combat planes may play an important role in reducing costs for postwar private flyers, according to a paper presented by A. T. Colwell, vice president, R. E. Cummings, valve engineer, and D. E. Anderson, consulting engineer, of Thompson Products, Inc., at the recent annual meeting of the Society of Automotive Engineers.

One of the principal benefits of water injection, they point out, is that it permits use of lower octane gasoline than that for which the engine was designed without detonation or loss of power. Tests run by an aircraft engine builder revealed that engines designed for 100 octane could be operated satisfactorily up to and including take-off conditions on 87-octane provided water was added, and that in general, adding water to the induction charge brought increased power with constant manifold pressure. Applied to the postwar light plane, this may well mean that it can be operated on fuel for ground vehicles and will not require special aviation gasoline.

The water injection principle also offers advantages from the maintenance standpoint by reducing engine roughness which is the condition that knocks out bearings and damages other parts, and by softening engine deposits so that they are much more easily removed.

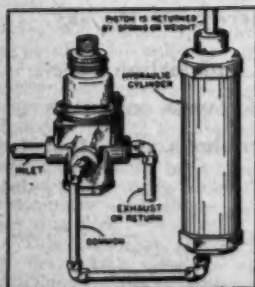
CAP Finances Markers

The North Carolina Wing of the Civil Air Patrol has employed a painter, recommended by the Civil Aeronautics Administration, for the state-wide air marker program. He is covering a section of the state at a time and when he has finished the markers in an area he is paid by the local CAP squadron. Donations from merchants are solicited by the CAP for the marker work.

Greensburg Airport Leased

The Greensburg (Pa.) Airport has been leased to the Greensburg Aviation Co., which will conduct a flying school under the direction of Paul A. Rushlander, former chief flight instructor at the WTS school operated there.

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WESTERN AIR LINES

AMERICA'S PIONEER AIRLINE

A group of representative civilians polled in a coast to coast survey by the Aeronautical Training Society overwhelmingly favors government-sponsored postwar aviation training for American youth, J. Wendell Coombs, president of ATS, announces. A majority declare that such training should be conducted by civilian flyers in contract operated schools, and some suggested war pilots returning to civilian life be given preference as instructors. The ATS has completed two surveys on occupational preferences of servicemen. They reveal that 19 per cent of those in the armed forces aspire to a career in aviation after the war.

A national airport program is too essential "to be laid away on a shelf of public works plans for use only in a period of widespread unemployment," William A. M. Burden, Assistant Secretary of Commerce, declared recently.

Speaking before the National Crushed Stone Association in New York, Burden said that with an adequate national airport system "civil aviation can grow to a point where it becomes a substantial segment of the nation's economy."

In a later address at Town Hall, Burden pointed out that the national airport program has become unbalanced because of a preponderance of large airports for airline operations and a lack of smaller fields for personal flying. He emphasized the need for a balanced airport program.

The federal government's investment in promoting the development of airlines through mail subsidy resulted in the growth of a sound air transport system, he said, and a similar government investment in airports will bring another return.

A special committee to perfect details of a uniform system of civilian flight training has been named by J. Wendell Coombs, president of the Aeronautical Training Society. The committee eventually will make available completely standardized instruction in several hundred peacetime bases in the country.

Named on the committee were Cody Laird, Atlanta, president of Southeastern Air Service; Capt. Maxwell W. Balfour, Tulsa, Okla., director of Spartan School of Aeronautics; and Maj. C. C. Mosely, president of Cal-Aero Technical Institute, Glendale, Calif. All have been operating Army contract flying schools.

Coombs said the plan was devised to give returning servicemen and civilians who wish to fly the same high quality of instruction that the government insisted on for pilots trained for the AAF.

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Auburn, Ind., Shows How Small Town Airport Can Be Prosperous Business

How a small-town airport can be made into a prosperous local business for the development of civil aviation and the employment of returned veterans has been demonstrated by Auburn, Ind., a city of only 5400 population. Last year, when the airport manager went into service, things looked dark for this 67-acre turf field. Then, Maj. I. W. Baldwin, Civil Air Patrol group commander, agreed to take over.

Taking time out from his duties as manager of the aviation division of Bowser, Inc., he organized a corporation for the field. A former Army instructor was employed, and soon there were 76 students ranging in age from 35 to 67. Two local businessmen joined the company full time, one as general manager and the other in charge of accessories. A third businessman from nearby Fort Wayne became comptroller.

The Auburn Rubber Co., engaged in war production, bought a Stinson Voyager to transport its executives on war travel. Results were so good they sold it and bought a larger Reliant. The Auburn Manufacturing Co. bought the Voyager, and it speeded travel so much that they likewise sold it and bought a larger plane.

Plane auctions were inaugurated, and are now held every two weeks. A professional auctioneer is employed, and the company gets five percent of the minimum price named by the seller and 20 percent of anything above.

A returned WASP is the instructor. Instrument and mechanic training facilities are being set up, together with a consulting service on airport design and construction.

Signs to Operate Westchester

North American Airport Corp. has signed a contract to operate the Westchester County Airport, Harrison, N. Y., for the duration of the war plus 15 years. The new airport, built by government funds and turned over to the county in April.

KC Scholarships Provided

The Kansas City Chamber of Commerce is providing 24 flight scholarships for honor students in the aeronautics classes of the eight public high schools in Kansas City. Each scholarship offers eight hours of dual flight instruction and relative ground work.

Simplified Navigation Important for Private Flying, Nesbitt Says

Aids to simplify navigation are essential, as well as the building of thousands of airports, to the development of private flying, says Sydney Nesbitt, sales manager of the Aircraft Radio Division of Lear, Inc.

"Technical advances in aircraft design, in production of aircraft accessories, in installation of radio direction finding and two-way radio equipment, in establishing radio beam airways and in spreading the visual marking system over the country will simplify navigation—and all these things are part of the groundwork we need for the development of private flying," Nesbitt declares.

"Today's burdensome air regulations will not be needed tomorrow—a pocket-size pamphlet should contain all the rules anyone need learn," he asserts.

Nesbitt, a 20-year veteran of aviation and aircraft radio, believes that landing fields should be located no farther apart than 50 miles "all over the country." He lists the four basic divisions of landing fields suitable for private aircraft as: Fields privately owned and operated by a man or organization to sell gas, oil, tires, radio equipment, and teach flying; flight stops, probably government-sponsored and probably consisting of a single runway heading into the prevailing wind; air harbors similar to air fields except for seaplanes; and airports, big modern air traffic centers such as La Guardia Field and those at other large cities.

CAP To End Tow Target Operations by March 1

Civil Air Patrol's tow target operations will be concluded March 1, Col. Earle L. Johnson, CAP's national commander, announces. All other activities of the 48-State CAP organizations will be continued on the present basis.

Seven members were killed, five were seriously injured, and 19 CAP planes were lost in carrying out 19,000 missions totaling more than 44,000 airplane hours flown in towing of sleeve targets over the fire of anti-aircraft guns, the flying of tracking missions for aiming practice and maneuvering at night over the blinding glare of searchlights, it was said.

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From metal vaults and cemetery equipment to 20 mm shells . . . that's the production switch The Champion Company, Springfield, Ohio, made when Uncle Sam needed help. That's about as broad a jump as you'll come across . . . but Champion made it in stride, with the aid of modern tooling and Bowser Liquid Control.

Tapping is, of course, a major operation in making shells, and high output from the tappers is vital. But steel particles in the cutting oil of Champion's tappers were dulling taps too quickly, causing excessive rejects due to poor threads, and continually causing down time on the machines.

Then a Bowser Pressure Filter was installed and, in the words of a Champion executive, "We cut our tap requirements in half, got a better thread and had practically no down time on our machines."

Another phase of Bowser Exact Liquid Control—Airport Fueling Systems—is giving equally outstanding service to the aviation industry around the world. Here is why Bowser, the pioneer in this field since the inception of aviation, is the recognized leader:

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EQUIPMENT

Aviation Battery Tester

A high-rate-discharge battery tester for ground tests of Army and Navy aircraft batteries has been developed by Lanagan & Hoke. It incorporates 5 calibrated nichrome resistors capable of dissipating up to 350 amperes on batteries of 12 and 24 volt potential. When the switch is thrown to start the test, an aircraft relay automatically closes the main-load circuit and at the same time closes a solenoid-type relay in a time clock which indicates on an etched dial the elapsed time of the test.



Scott Handi-Air

A portable air supply which is carried to the plane instead of the plane being moved to the air hose is being offered under the name Scott Handi-Air by Scott Aviation Corp., Lancaster, N. Y. The unit weighs only 24 pounds and holds enough air for eight light plane tires. A gauge indicates pressure remaining in the tank, and it can be refilled from the regular air supply. Available for immediate delivery.



Modutemp Regulating Unit

A new temperature regulating unit for oil coolers, coolant radiators and aircraft heating systems has been announced under the name Modutemp by Vapor Car Heating Co., Chicago. It employs the principle of a tempera-



ture gap formed by two electrical contacts in a mercury thermostat which control individual relays. The contacts may be set to meet the temperature specifications and range of the individual requirements. Modutemp aircraft type weighs only 25 ounces.

New Magneto Test Stand

Airplane Manufacturing & Supply Corp., North Hollywood, Calif., has announced a new magneto test stand (Model 1 PA 905) designed to drive dual distributors with the magneto. Flange mounting magnetos with integral distributors may be mounted and tested at the required speeds. The magneto is driven directly and the distributors by gearing from the main drive. Pulleys and belts are eliminated to increase accuracy. The new stand has a welded steel frame and is equipped with a 1-1/2 constant horse power DC motor and a converter to permit use of 220 volt AC external power.

Flow Indicator

The Rotasight Flow Rate Indicator, which operates on the rotameter area-type principle with a V-ported transparent metering tube and a float which rises in direct proportion to the flow through the meter, has been announced by Fischer & Porter Co., Hatboro, Pa. The new instrument is said to be compact and comparatively inexpensive, and to indicate the true flow rate. The rotasight can also be used as a flow rate alarm, the first such alarm which is operated by flow rate changes only, and which is equally sensitive at all points in its flow range due to straight line calibrations.

Spark Plug Service Stand

A new model service stand for servicing and testing aviation spark plugs has been announced by Airplane Manufacturing & Supply Corp., North Hollywood, Calif. Sixty inches long, 23 inches wide, and 40 inches high, it has a masonite work top and incorporates storage and drying space which will handle 350 spark plugs and maintain a temperature of 150° F. The bench is made in two models: A660W, which has a BG M-591 Wheatstone bridge type spark plug tester with bomb and regulator; and A660M, which has a BG M-519 test bomb with magneto and three point gap panel.

Surface Combustion Heater

A portable heater developed by Surface Combustion is now being used at Alaskan air bases to preheat airplane engines, cabins, instruments and windshields where 50 degrees below zero is not an uncommon temperature. Employing the same "whirling flame" principle as the Janitrol aircraft heater, the new portable unit burns gasoline, kerosene or oil.

Engine Supercharger Regulators

Type 581 Supercharger Regulators developed by Eclipse-Pioneer Division, Bendix Aviation Corp., provide automatic control of auxiliary stage superchargers regardless of atmospheric pressure or temperature variations, maintaining constant carburetor air inlet pressure. Two models are available. Model 12 for up-draft carburetors and Model 13 for downdraft carburetors. Mounted on the accessory drive section, the regulators are compact and weigh only 4.75 pounds.

'Click' Gang Channel Redesigned

The "Click" Gang channel nut and bolt retainer has been redesigned by Kaynar Manufacturing Co., Los Angeles. An overall width reduction of 10 percent has been made to meet existing engineering standards, and the bearing surface and retaining strength of the channel flange has been increased. The channels are fabricated from 24ST Alclad Aluminum and available to accommodate nut sizes 6-32 through 5/16"-24.

New Light Weight Gasoline Drum

A light weight aluminum 55-gallon gasoline drum developed by the Air Technical Service Command and the Air Transport Command is being manufactured for the Army Air Forces by Aluminum Utensil Co., Kensington, Pa. The aluminum drum is 31 pounds lighter than the usual steel drum of the same cubic content, and was designed primarily for flying "the Hump" to China.

Plastic Container

The container part of the Sky-Hook supply landing container is formed from six layers of canvas and fiberglass bonded with thermosetting Laminac resin. The resulting material is light in weight and yet extremely tough to assure the shockproof conditions under which ammunition and supplies often must be landed from planes.

Portable Flashing Beacon

A lightweight, portable flashing beacon which operates from 110 volts DC or AC and produces high-intensity, short duration intermittent light flashes visible under normal operating conditions for at least 20 miles at night has been developed by Electronic Laboratories, Inc., Indianapolis. Similar units have been designed to operate from 6, 12 or 24 volt storage batteries.



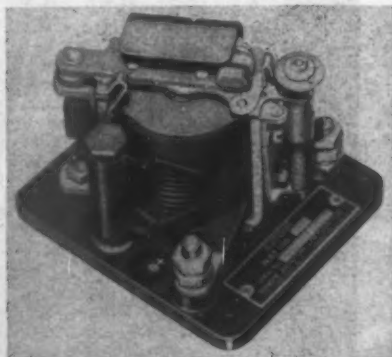
Radio Range Orientator

A new type radio range orientator and turn and heading computer designed by A/S John R. Dean of the Air Transport Command has been announced by Aviation Associates, Chicago. It is designed to give the pilot instantly and accurately his bisector heading, drift corrections, heading to fly to reach the nearest beam leg when getting a fade-out signal, headings to fly during turn-around procedure on each beam leg, ship to station bearing and station to ship bearing. Four arms on the orientator can be set to coincide with the published beam bearings of the particular radio range being flown.



Reverse Current Cutouts

Eclipse Reverse Current Cutouts are being produced by Eclipse-Pioneer Division, Bendix Aviation Corp., to prevent the reverse flow of current to generators in aircraft power systems, utilizing batteries and generators as



a power source. Properly installed in the aircraft power supply system, they provide a compact, lightweight means of automatically disconnecting generators from electrical systems when generator voltage drops below system voltage. The Reverse Current Cutouts also operate as generator automatic main switches. They operate satisfactorily in any mounting position when adjusted in that position. Changes in cutout temperature have a minimum effect on their operation. The armature leads on Types 352 and 665 are shielded to prevent change in cutout setting through handling. Silver alloy contacts have long life and low voltage drop and the adjustment knob is conveniently accessible and automatically locked.

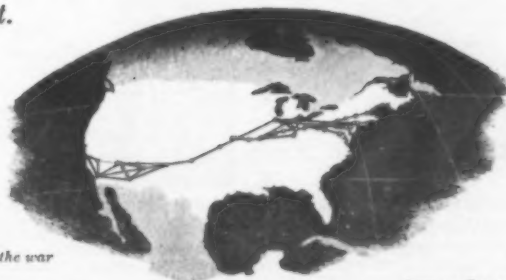


ADVENTURE IN CONTENTMENT

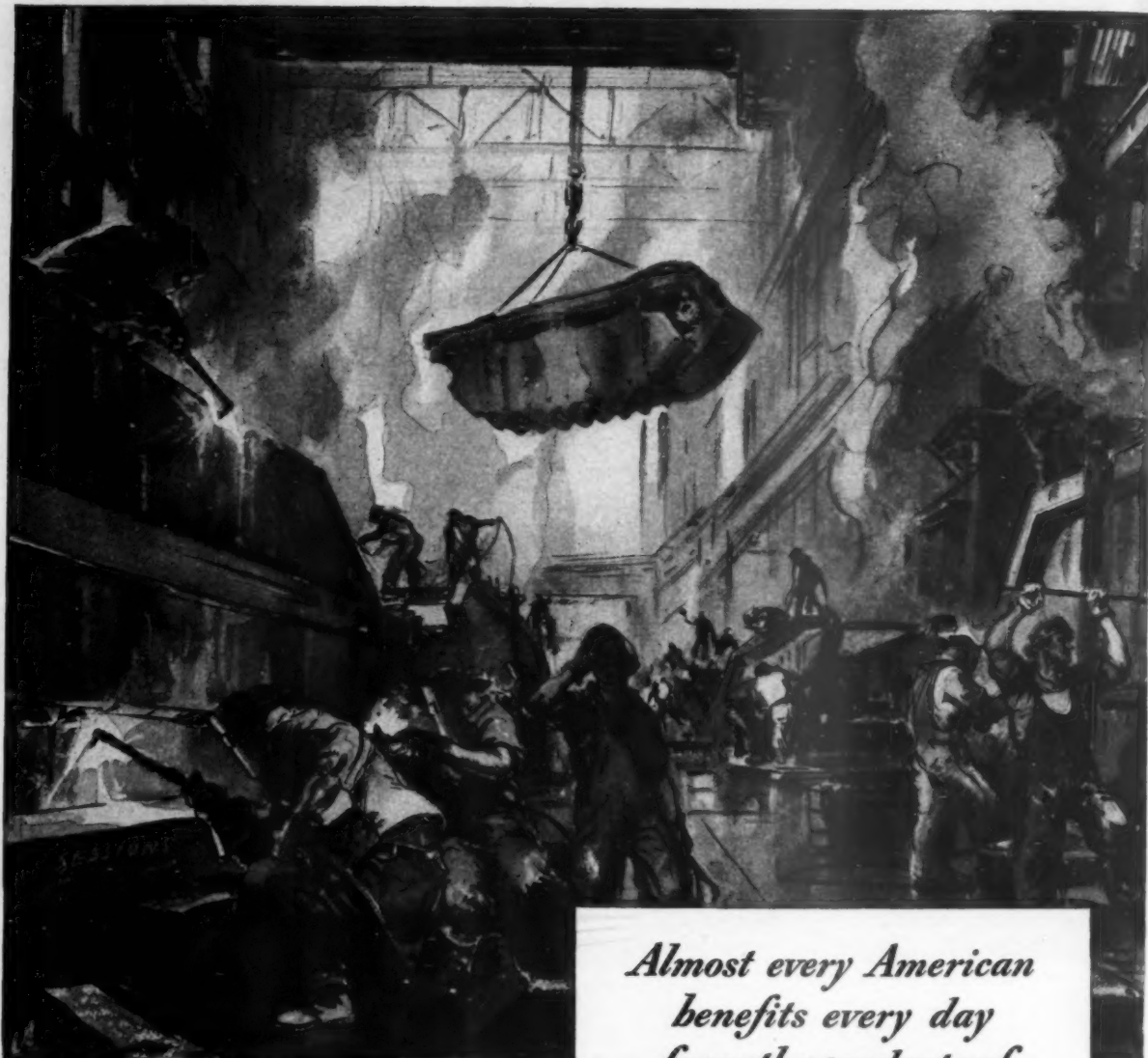
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Don't travel unless your trip helps win the war



Blue Map © R. McN. Co.



JAMES SESSIONS paints his impression of Borg-Warner's Ingersoll plant at Kalamazoo. Here, where furnaces are made in peacetime, Borg-Warner-designed amphibian "Beachbusters" are now built by mass production methods.

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Points a Way to

LOWER MAINTENANCE COSTS



A WHOLE new concept of how much airlines can save in maintenance costs has been opened up by the all-metal, self-locking nut.

"Lighter in weight, yet far stronger and longer-lasting in service, this one-piece nut is truly an outstanding engineering achievement of inestimable value to the air transport industry."

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(W25 #8-32)—The comparable fibre-type nut is more than 2½ times as heavy as this Boots all-metal nut.



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Diesel use specify Reading "Terminal Cart" Starting Batteries.

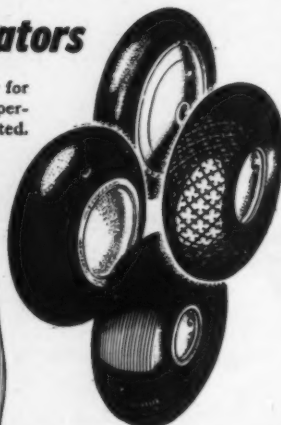
These lead-acid, non-spill batteries are used today by some of the world's greatest aircraft producers. For

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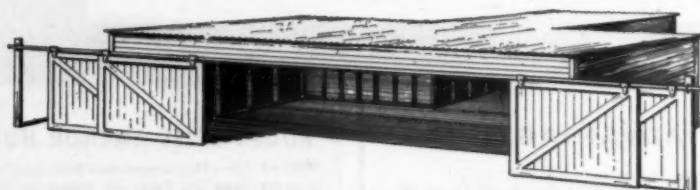


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Designed to meet the needs of any operator, these famous aircraft tires are now available for aircraft of all types.

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Built for engines ranging from 40 HP to 250 HP, Fahlins meet CAA specifications and carry approved type certificates.



Otto Portable "T" Hangars

Here for the first time is a low cost, practical, portable "T" hangar for the light plane owner or fixed base operator. Large enough for any standard light aircraft, these hangars are designed so that they may be interlocked to form a hangar line of any desired capacity. Price, complete including doors, \$575.00 f.o.b. factory. Write today for full information.

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Aircraft Engines 'Canned' To Keep Out Moisture

Can openers large enough to open a "canned" aircraft engine may soon be needed by GI's in the South Pacific, according to Maj. D. L. Batten, Packaging Coordinator, Air Technical Service Command, Wright Field, who reported that the AAF has found a tremendous advantage in the use of hermetically sealed cans to guard against deterioration from the hot and humid Pacific climates.

Hundreds of AAF items which previously had to be cartoned and crated after the application of plioform or some other moisture repellent, now are being canned under a new process developed at Wright Field, with the steel cans serving the three-fold purpose of unit container, shipping container and moisture barrier.

Under the "canning" method, there is not only a frequent saving of weight—all important in air freight shipments—and generally superior protection, but also a considerable reduction in expense. In the case of an engine cylinder, for example, the minimum cost of moisture-proof wrapping and wooden crating is \$4, yet the same cylinder can be canned for about \$2.50.

Bomb Bay Doors on B-29 Opened in 7/10 of Second

A new pneumatic actuating device recently installed on the B-29 Superfortress snaps open the bomb bay doors in seven-tenths of a second and closes them in three seconds, according to an announcement by Boeing Aircraft Co. The former electrically controlled system took 15 or more seconds to fully open the doors and even longer to close them. Designed to cut down on the time during which enemy fighters know that a bomber is on its run and can take no evasive action, the new compressed air system was engineered by Boeing in response to Army requests. Already it has proved so successful on the Superfortress that the Air Technical Service Command is recommending it for use on other types of aircraft.

Flat Price for Aluminum Scrap

A flat maximum price of 18 cents a pound for scrap from the fabrication of aluminum sheets and other aluminum products that is suitable for use in the production of small articles without remelting has been established by the Office of Price Administration. Sellers who have scrap that they can prove is worth more than 18 cents a pound may apply to OPA for approval of a higher price under the amended regulations.

Reynolds Offers Calculator

A new, pocket-size weight calculator, which operates on the slide-rule principle, and shows at a glance the comparative weights for aluminum, magnesium, brass, steel and copper in various forms and sizes is being distributed free by Aluminum Progress, Reynolds Metals Co., 2500 S. Third St., Louisville 1, Ky.

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AWPC Regroups Personnel For Stepped-Up Production

Officers Chosen And Committee Adjustments Made

By CLIFFORD GUEST

THE AIRCRAFT War Production Councils, regrouping their personnel last fortnight for stepped-up production efforts, selected new officers for this quarter and began committee adjustments to meet current problems.

Rex B. Beisel, general manager of the Chance Vought Division of United Aircraft Corp., took over the presidency of the National AWPC Feb. 1, with Harry Woodhead, president of Consolidated Vultee Aircraft Corp., as vice president.

Beisel also assumed the presidency of the East Coast Council, with Guy W. Vaughan, president of Curtiss-Wright Corp., as vice president. Woodhead simultaneously became president of the West Coast Council, of which Robert E. Gross, president of Lockheed Aircraft Corp., became vice president.

At the same time, Richard C. Palmer officially became general manager of the NAWPC with headquarters at 606 American Bldg., Washington. Palmer has served the National Council in Washington since its formation, and prior to that was Washington representative of the West Coast Council.

Manpower and materials problems were among the most pressing on which the Councils were concentrating attention last fortnight. Good results were reported in meeting the aluminum shortage situation, and confidence was expressed that other material problems ahead could be solved.

Spokesmen said the Councils were re-

activating and restaffing committees such as Management, Selective Service, Materials, and Public Relations for renewed in-plant incentive programs.

Efforts were under way to obtain a Selective Service policy which would prevent the draining of essential trained personnel from aircraft plants.

WPB Chairman J. A. Krug and Col. E. W. Rawlings, administrator of the Aircraft Scheduling Unit, met with the East Coast Council in New York on Jan. 31, presenting an off the record overall picture of the war production situation.

Upon assuming presidency of the West Coast Council, Woodhead issued a statement saying that a joint attack on aircraft problems will be the production "tool" for increased 1945 output.

"Continuing manpower shortages, the close balance in demand and supply of aluminum, and getting newly developed models into production continue as the chief problems of West Coast airframe manufacturers," he said. "Recent conferences of aircraft builders with the armed services have developed plans for largely avoiding, through balanced distribution, a material shortage."

Woodhead is currently at Convair's Allentown, Pa., division where efforts are being pushed to step up production.

100 Million Bearings in '45

Approximately 100,000,000 anti-friction bearings of all types and sizes will be manufactured in 1945 for the aircraft industry alone, Maj. A. H. Kempner, Statistical Studies Branch, Resources Control Section, Air Technical Service Command, discloses. In addition to these assemblies, 35,000,000 steel balls and 25,000,000 rollers will be made for aircraft use.

GM to Remain in Aircraft Engine Field After War

General Motors Corp. intends to remain in the aircraft engine field after the war, R. K. Evans and C. F. Kettering, vice-presidents, disclosed recently in interviews.

The Allison engine will be built to compete in the commercial transport field with air-cooled radial engines, and will be available for airliner use in units ranging from 3,000-4,000 hp.; and engine development for private aircraft will be an important field.

Evans and Kettering, however, denied current reports of a revolutionary new engine for use both in private aircraft and postwar automobiles, but did disclose that the latter has been working on an engine for postwar private planes which is now under military tests.

The diesel engine, they said, is not applicable to aircraft in the present state of metallurgy. Turbo-jet power plants, on the other hand, show tremendous possibilities they believe. Kettering said that the ideal engine for commercial air transport would differ considerably from wartime engines, pointing out that the latter were designed for special needs and emergency stresses.

Patent Cross-Licensing Agreement Held Big Help To Aircraft War Output

Samuel S. Bradley has been re-elected chairman of the board of the Manufacturers Aircraft Association. Frank Russell was re-named president, and John A. Sanborn re-elected general manager. Vice presidents elected were: Clayton J. Brunker, Waco Aircraft Co.; Robert E. Gross, Lockheed Aircraft Corp.; Joseph T. Hartson, Glenn L. Martin Co.; J. H. Kindelberger, North American Aviation, Inc.; John M. Rogers, Douglas Aircraft Co.; Raymond S. Pruitt, Consolidated Vultee Aircraft Corp.; and Raycroft Walsh, United Aircraft Corp. James P. Murray, Boeing Aircraft Co., was re-elected secretary, and Wm. E. Valk, Curtiss-Wright Corp. and Wright Aeronautical Corp., was elected treasurer.

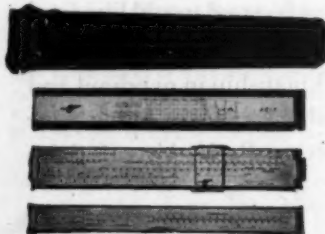
The following were named directors: Bradley; Alexander T. Burton, North American Aviation, Inc.; Charles H. Chatfield, United Aircraft Corp.; Frank N. Fleming, Douglas Aircraft Co.; M. G. Cleary, Lockheed Aircraft Corp.; D. W. Farrington, Glenn L. Martin Co.; Charles Kingsley, Grumman Aircraft Engineering Co.; Murray; Pruitt; Russell; Valk; and Ray P. Whitman, Bell Aircraft Corp.

Russell pointed out that much of the success of the aircraft industry in the war effort may be attributed to the soundness of the Association's patent cross-licensing agreement, under the operation of which 1648 patents have been brought to date, with 152 reported during 1944. "By continuing to make important technical progress available to all manufacturers," he said, "we have made possible the prompt application of advanced ideas to all current models without fear of interference from wasteful litigation and controversy while at the same time eliminating the possibility of delay or hardship due to any monopolistic tendency within the aircraft industry."

Aircraft



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A BETTER WAY TO TRANSMIT POWER



Here is a way to transmit power through congested space and produce linear motion at a distant point. It is with Lear Flexible Shaft systems. These systems can provide power to a space so small that it would not permit the use of even the small Lear Actuator.

In these systems, a Lear Power Unit is mounted where space permits and Lear Flexible Shafting carries the force to points where motion is required. Here Lear Screw Jacks convert the spinning motion into a powerful thrust or pull.

Lear Flexible Shafts are not like any you've seen before. They reliably handle power rotating either way. They're strong.

Installation is easy and not expensive. They have no exposed moving parts. They can do the work of solid shafts, torque tubes, pulleys, linkages, sprockets, belts and chains.

The days to come are going to bring a lot of difficult power-transmission and control problems in all kinds of industry. And probably Lear Flexible Shaft systems will solve many of them.

So we're telling you about them now. If you're faced with a problem such as we've indicated, please let us know. Our engineers are eager to share their experience with you.





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Mustang Output at New High

Establishing an all-time national production record, North American Aviation, Inc., completed more than 570 Mustangs at its Inglewood, Cal., plant during January. The previous monthly record for the industry was 555 planes of one type from one plant.

Douglas Building Mobile Schools

Mobile schools on wings and wheels are being built by Douglas Aircraft Co. for the AAF Western Technical Training Command. Twenty-five of these schools are already in service from France to the Southwest Pacific, and more are being built at the Douglas Santa Monica and Long Beach plants. Each school unit consists of a score of compact demonstration replicas of the individual operating systems of the warplane, plus a staff of seven to ten trained army instructors and a Douglas service representative.

Cadmium on Critical List

Larger quantities of cadmium plating needed for aircraft and tanks together with requirements added by the stepped-up rocket program will keep this material high on the list of critical materials throughout 1945, according to the War Production Board. The armed services have saved as much as 1,500,000 pounds of cadmium annually by switching to zinc on alternate plate finishes.



White City—Workmen are here shown painting the new all-white assembly line at the Santa Monica plant of Douglas Aircraft Co. which is expected to increase C-54 production 250 percent by late summer. Fixtures, walls and ceilings will all be painted white and cream which will step up light values by 50 percent. The new scheme eliminates eye strain and is said to have a good psychological effect on the workers.

Exhaust Gases of B-29s

Drive Air Compressors To Pressurize Cabins

Many of the design and operational developments in the pressurized cabin of the B-29 Superfortress and the C-97 transport came about as the result of a two-year research project conducted by American Airlines, Inc., and General Electric Co. at La Guardia Field.

The new equipment, described as a revolutionary method of passenger cabin pressurization, utilizes engine exhaust gases to drive an air compressor which condenses the rarefied stratosphere air to livable pressure for crews and passengers, and does away with the need for oxygen masks. In addition, the American Airlines' equipment provides an inside temperature of 60 degrees while the outside temperature is about 60 degrees below zero, thus eliminating use of ordinary heaters. The plane is further equipped with air radiators which cool the compressed air when higher temperature outside atmosphere is encountered. There is no possibility of contaminating the cabin air supply with this method of pressurization.

The new equipment was tested at 36,000 feet in a Douglas B-23 bomber equipped with special Wright Cyclone engines modified for stratosphere flight and delivering a total of 3,400 horsepower. Every phase of the research and development was conducted under strict guard, and flight tests dispatched from La Guardia Field were known as "Special Flight 9050". Project engineers for American Airlines were Marvin Whitlock, Robert McGuire and Robert Murray. Nicholas Frischert was resident engineer in charge of developments for General Electric. Flight tests were supervised for American by M. G. Beard, director of flight engineering, and Glen Brink, American's chief engineering pilot, conducted the high altitude tests.

Bendix-Scintilla Develops Aircraft Ignition System

For Very High Altitudes

A new aircraft ignition system which makes possible efficient operation at higher altitudes than ever before, easier control of the electric current, less interference to radio reception and greatly increased resistance to moisture and other atmospheric conditions has been developed by the Scintilla Magneto division of Bendix Aviation Corp.

Capable of operating efficiently at altitudes of 50,000 feet and over, the new development replaces a high tension current of over 10,000 volts with a low tension current of comparatively few hundred volts over the greater part of the ignition system. It is further stated that it will deliver a higher voltage spark than other systems after spark plugs become fouled with use, thus simplifying maintenance and reducing the number of time-outs for spark plug cleaning.

It is expected that the new system will find wide use in the larger types of military and civilian aircraft.



For Work Well Done—L. M. Bach, general works manager of Lockheed Aircraft, is shown receiving a 10-year pin from Robert E. Gross, president of the company. A moment later, Courlandt S. Gross, vice-president and general manager (left), received a 10-year pin as brother pinned one on brother.

Liquid-Cooled Engines Bring New Accessories

The installation of liquid-cooled Allison engines in the Douglas XB-19A not only represents a radical departure in the powering of heavy aircraft, but has also brought about some startling new accessory developments, according to Lear, Inc.

Called upon to prepare actuators to move the air filter doors, oil cooler flaps, glycol cooler flaps and intercooler exit flaps, Lear designed and built mechanisms in which automatic temperature controls were used in combination with flexible shaft power transmission systems for the first time in aviation history. The flexible shaft permits the control to be mounted at any convenient point and eliminates crowding in equipment at the point where control is desired. In two applications on the B-19 the new system further permits a single power unit to do double duty. Two screw jacks operating from one unit through flexible shafting move two doors each in the oil cooler and glycol cooler flaps.

Electric 'Brain' Invented By Convair Engineers For Helping in Test Flights

An electronic "brain" which helps pilots test fly new airplanes has been invented by flight research engineers of Consolidated Vultee Aircraft Corp., San Diego. Technically the device is known as a flight recorder, and comprises a self-operating radio transmitter located in the ship, and a receiver on the ground operating in connection with automatic recording apparatus. Throughout the flight the transmitter sends instrument indications to the receiver which records them in the form of graphs at a rate of as many as 80 per second. The new device is particularly valuable in testing single seat aircraft where it is impossible for a lone pilot to fly and observe all the instruments necessary to prove the performance of a new airplane. In larger aircraft it increases accuracy of the observations by eliminating the human element.

Over-the-Counter Securities

(Courtesy Merrill Lynch, Pierce, Fenner and Beane)



Munn

von Ritter



Moore

Eggert

Fred A. von Ritter has been named assistant director of public relations of Republic Aviation Corp., in charge of advertising and sales promotion.

John R. Munn, a director of Elastic Stop Nut Corp. of America since 1927, has been elected president of that company, succeeding the late William T. Hedlund. He is also chairman of the board of Munn & Steele, Inc., manufacturer of insulating materials.

Joseph R. Eggert has been named plant manager of Curtiss-Wright Corporation Propeller Division plants at Caldwell and Clifton, N. J. George L. Lang was named plant manager of the Indianapolis Plant. Eggert was formerly general production manager of the division, and Lang was assistant plant manager at the Indiana unit.

William L. Wilson, who has been assistant to the president since November, 1943, has been elected vice president of Kellett Aircraft Corp. and will be responsible for "human relations." From 1939-42 he was director of public relations of Republic Aviation Corp. Dr. Robert Livingston Johnson, president of Temple

	January 27		February 3	
	Bid	Asked	Bid	Asked
Airlines				
All American Aviation	9%	9%	9%	10%
American Airlines pfd.	31½	33	33½	35
American Export Airlines	19	sale	18½	sale
Braniff	14½	15½	15	15½
Chicago & So. common	7	8	7	7½
Chicago & So. wts.	11½	12	11½	11½
Continental Airlines	22½	25	23	26
Delta Air	3½	4½	3½	4½
Inland Airlines	8½	9½	9	9½
Mid-Continent	17½	sale	17½	sale
National	12½	12½	12½	sale
Northeast Airlines				
Manufacturers				
Aerona	4%	5	4%	5
Air Associates	13	sale	13½	sale
Aircraft & Diesel	1½	2½	1½	2½
Alreone Mfg.	7½	sale	6½	sale
Airplane & Marine	5%	6%	5%	6½
Airplane Mfg. & Supply	2½	3½	3%	4
Central Airports	½	1	½	1
Columbia Aircraft	¼	¾	¼	¾
Continental Aviation	3½	3½	3½	3½
Delaware Aircraft pfd.				
General Aviation Equip.	1½	1½	1½	1½
Globe Aircraft			½	1½
Harlow Aircraft	¼	½	¼	½
Harvill Corp. common	1½	2½	1½	2½
Interstate Aircraft & Eng.	9½	10½	10	10½
Jacobs Aircraft	4½	4½	4½	sale
Kellett Aircraft	1½	1½	1½	1½
Kinner Motors	1½	1½	1½	1½
Liberty Aircraft	12½	13½	13	13½
Luscombe	1½	2½	1½	2½
Menasco Mfg.	1½	1½	1½	1½
Northrop Aircraft	7%	sale	7%	sale
Piper Aircraft common	4½	sale	3½	4½
Piper Aircraft pfd.	39½	.....	38½	.....
Pittsburgh Aviation Ind.				
In Liquidation. Final payment @				
Farmers Dep. Bk.				
Rohr Aircraft	7½	8½	7½	8½
Std. Aircraft Products			60c	70c
Taylorcraft common	2½	2½	2½	2½
Taylorcraft pfd.	6½	7	6½	6½
Timm	0.45	0.60	50c	60c
United Aircraft Prods. pfd.	18	19½	18½	19½

University, has been elected a director of Kellett.

Frederick W. Moore has been named general manager of Curtiss-Wright Corp., Propeller Division.

W. W. Gibson, with Curtiss-Wright since 1936, most recently as general production manager of Curtiss-Wright Propeller Division, Caldwell, N. J., has been appointed vice-president and general manager of L.G.S. Spring Clutch Corp., Indianapolis, a wholly owned Curtiss-Wright subsidiary.

David F. Devine, formerly director of finance for the Niagara Frontier Division, has been appointed comptroller of Bell Aircraft Corp., succeeding John Berry, Jr., resigned.

WACO Aircraft Shows Net Profit of \$181,543

Waco Aircraft Co. showed a net profit after taxes of \$181,543 on net sales, including expenditures for cost plus contracts and fee, of \$12,046,603 for the fiscal year ended Sept. 30, 1944, according to its annual report. Total current assets are listed as \$3,709,724, and current liabilities as \$3,086,556.

Current assets include: cash on hand and in banks, \$140,594; cash in bank restricted to USAAF contract expenditures, \$639,670; cash in bank for contracts—not restricted, \$36,444; accounts receivable less reserve, \$76,681; accounts receivable, USAAF, \$186,207; expenditures to be reimbursed under CPFF contracts, \$17,518; and inventories, \$412,160. Other assets total \$219,890; plant and equipment, company owned \$305,927; and deferred expense, \$26,923.

Current liabilities include: accounts payable, Waco purchases, \$49,727; accounts payable, U. S. contracts, \$569,106; notes payable, \$400,000; accrued liabilities, \$176,122; advances by USAAF on contracts, \$800,000; advances by Waco on contract accounts, \$600,000; provision for taxes less refunds due on prior years, \$435,643; accounts payable, officers and other, \$16,678. Capital stock, \$520,000; capital surplus, \$60,192; operating surplus, \$489,033.

Edgar C. Brandt, previously assistant to the general manager of Crocker-Wheeler Electric Manufacturing Co., Ampere, N. J., has been appointed plant manager of the Beaver, Pa., plant of Curtiss-Wright Corp., Propeller Division.



R. L. Johnson

Wilson



Devine

Brandt

February 3
 Asked
 10%
 35
 sale
 15%
 7%
 11%
 26
 4%
 9%
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 sale
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Manufacturing Roundup

Electronic "Brain" for Riveting

An electronic device for use in riveting operations developed by Walter Mandel, an employee, is helping Consolidated Vultee Aircraft Corp. solve the manpower problem. Resembling a small radio set, the device eliminates the need for a large number of aircraft workers by making it possible for a machine to do most of the work involved in riveting certain types of subassemblies. It tells the machine where to punch holes, how to insert rivets, and when to form driven heads. It is not subject to fatigue or absenteeism, the company reports.

Solar Signs Jet Contracts

Solar Aircraft Co. has signed additional contracts for the production of major parts for jet propulsion engines with Allison Division of General Motors Corp. All three Solar plants will produce parts under the Allison contracts. The Des Moines plant which is currently turning out these parts by hand will have approximately \$2,000,000 of new equipment installed by June, and expects to reach peak production in November. Important parts for another jet engine for Allison are being filled at the San Diego and National City plants in addition to parts being manufactured for jet engines under a previously announced contract with General Electric Co.

One Billion by Douglas

Douglas Aircraft Co. delivered \$987,687,196 worth of warplanes and spare parts to the government in 1943 without retaining any excess profits requiring renegotiation. The company has been notified that its report for the fiscal year ending Nov. 30, 1943 has been examined by the Price Adjustment Board and no excess profits found. On a volume of business totalling nearly a billion dollars the Douglas company reported a net income of \$5,962,287 or only six-tenths of one per cent of profit. By comparison, in 1939, the last year of peacetime business, Douglas reported profits of 10 3/10 per cent upon its sales volume.

New Products Dept. at Goodrich

A new products department has been established in the aeronautical division of B. F. Goodrich Co., Akron, to develop new rubber, synthetic rubber and plastics products for aviation uses. It is staffed with engineers assigned to work with all branches of the aircraft industry. Goodrich currently makes more than 80 rubber and synthetic rubber products for aircraft.

Ryan to Install New Equipment

More than a million dollars of new production machinery, plant equipment and testing devices needed to speed work on Navy contracts now exceeding \$60,000,000 will begin arriving at Ryan Aeronautical Co. this month, according to T. Claude Ryan, president. The Defense Plant Corp. will provide \$1,012,250 for the expansion, bringing its total commitments at Ryan-San Diego to approximately \$2,750,000. To put the new equipment into use as quickly as possible, the company is recruiting more than 3,000 additional workers for long term employment.

New Catalina in Production

A new and improved Catalina amphibian designated as the PBV-6A is in production at the New Orleans division of Consolidated Vultee Aircraft Corp. The new model has heavier armament and a 400-mile greater range. A V-shaped bomber window gives it a new streamline appearance, and a higher, slimmer tail improves handling characteristics.

Production Speed-Up at Lockheed

Acceleration of production on the B-17 Flying Fortress and a new fighter type for the Army already has begun at the factories of Lockheed Aircraft Corp., according to Robert E. Groom, president. Lockheed is also accelerating steadily on its Constellation transport for the Army and an improved search bomber for the Navy.

Lockheed Transfers Work

Work performed at the Lockheed Aircraft Corp. sub-plant at 6201 Randolph St., Maywood, is being transferred to the main factories in Burbank, and to Factory B-7, due to expiration of the lease on the Maywood property. A majority of the 1,500 employees originally employed at the Maywood facility have accepted transfers to other plants and production will not be affected.

Radar on 'Black Widow'

The long suspected fact that the P-61 Black Widow is loaded with radar for night flying, detection, and identification has just been officially revealed by the War Department. Pilots who have flown these planes in combat report that once they have obtained a fix with radar, no amount of dodging by an enemy plane can bring escape.

Goodrich De-Icer Accepted

The Army Air Forces has accepted the B. F. Goodrich Type II de-icer for use on fighter aircraft following exhaustive tests on the Northrop P-61 Black Widow. Use of this de-icer was formerly confined to bombers.

Classified

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